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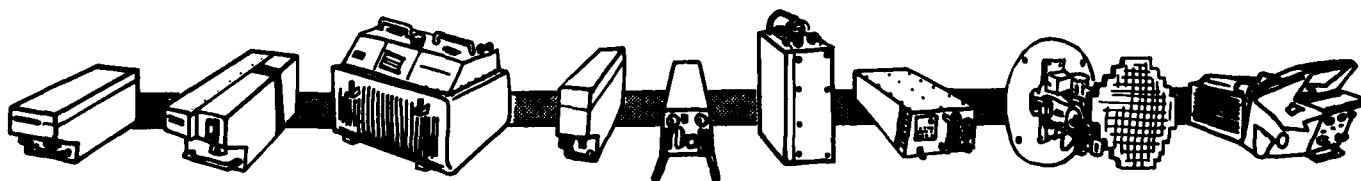


RELIABILITY IMPROVEMENT WARRANTY

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Implementation and Management Plan

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SECTION 1

INTRODUCTION TO THE F-16 RIW IMPLEMENTATION AND MANAGEMENT PLAN

The F-16 Air Combat Fighter (ACF) Program is a multinational fighter program as defined in the Memorandum of Understanding (MOU) between the Multinational Fighter Program (MFP) nations of Belgium, Denmark, The Netherlands, Norway, and United States. The MOU provides for industrial participation by the European Participating Governments (EPGs) in the production, assembly, and logistic support of the F-16 ACF. The office of primary responsibility (OPR) for the F-16 program is the F-16 System Program Office (SPO) of the Air Force Systems Command (AFSC), Wright-Patterson Air Force Base (WPAFB), Ohio.

Nine items of avionics equipment in the F-16 ACF were procured under a Reliability Improvement Warranty (RIW)*, which provides essentially that all warranted units returned to the contractor during the four-year warranty period will be repaired or replaced at no additional cost to the MFP nations. However, implementation of the RIW program will severely test the management resources of the United States and European Participating Governments' Air Forces. In its most simple application, RIW clearly represents a departure from "business as usual." In the case of the F-16, many additional challenges associated with RIW management are manifested. For example, the program includes:

- RIW with a Mean-Time-Between-Failures (MTBF) guarantee
- RIW at the Line Replaceable Unit (LRU) level
- RIW at the Module level

The RIW contract is a single instrument placed with the F-16 prime contractor, who has passed the RIW commitments to four subcontractors. The F-16 RIW program is thus the most comprehensive and complex application of RIW ever attempted within the Department of Defense. The successful implementation of the RIW program will require cooperative planning and dedicated effort of all parties associated with F-16 support. This implementation plan has been prepared as a first step in achieving this planning and defining the efforts required.

*A tenth item, the AN/ARN-118 TACAN is also warranted, but the RIW is managed under a separate contract with Collins. The TACAN is furnished as GFE to the F-16 contractor.

SECTION 2

DEVELOPMENT AND SCOPE OF THE PLAN

2.1 PURPOSE OF PLAN

The purpose of this Implementation and Management Plan (IMP) is to provide a complete and comprehensive document that describes the multiple features of the F-16 RIW program, defines the responsibilities for meeting the contractual provisions of the program, identifies the responsible participants, and establishes the procedures and interfaces required for its successful implementation and management. The objective of the IMP is to assist the MFP users in introducing the F-16 RIW items into their inventories with minimum disruption to existing logistic support procedures.

2.2 APPROACH

This plan has been assembled on the basis of information, data, regulations, requirements, and engineering and logistics expertise from a variety of Air Force and contractor sources. Special Air Force regulations and procedures pertaining to RIW programs have also been reflected in this consolidated RIW Implementation and Management Plan.

2.3 SCOPE

This IMP is applicable to the following MFP organizations associated with the F-16 RIW program:

- Belgian Air Force (BAF)
- Royal Danish Air Force (RDAF)
- Royal Netherlands Air Force (RNLAf)
- Royal Norwegian Air Force (RNOAF)
- United States Air Force (USAF)

Although this document does not direct any contractor actions, and nothing contained herein is to be construed as a substantive change to the contractor's obligations under the RIW contract, the following contractors

should review the IMP to ensure that there are no inconsistencies between their RIW procedures and those set forth herein:

- General Dynamics Fort Worth Division (GD)
- Lear-Siegler Incorporated (LSI)
- Marconi Avionics Ltd.
- Singer-Kearfott
- Westinghouse

To the extent practical, standard Air Force logistics concepts, policies, and procedures have been used for the F-16 RIW program. However, because of the program's complexity, newness, size, and array of participants, some departures from normal procedures are to be expected. This plan addresses primarily those features of the F-16 program that are unique because of RIW and provides an explanation of their interface with the standard USAF logistics system. Where USAF regulations/DoD directives are cited within this plan, EPG compliance is required only to the degree necessary to fulfill the MFP governments' contractual obligations and the provisions of the Memorandum of Understanding (MOU), Letters of Agreement (LOA), and agreements reached by the Multinational Steering Group.

Recommended revisions to the IMP should be forwarded to ASD/YPLS and ASD/YPKOA, Wright-Patterson Air Force Base, Ohio 45433.

SECTION 3

APPLICATION OF THE RIW CONCEPTS TO THE F-16

This Section of the Plan provides background, first for RIW in general and then for the F-16 program. If desired, readers already familiar with both general RIW terms and procedures and events leading to the F-16 RIW may proceed to Section 4, which addresses the F-16 RIW program in its current stage of development.

3.1 OVERVIEW OF RIW CONCEPT

The objective of an RIW is to motivate a contractor to design and produce equipment that will have a low field-failure rate and incur low repair costs in operational use. Under RIW, a predetermined fixed price is agreed upon, and the contractor repairs or replaces as necessary all warranted units returned to his repair facility at no increase in this fixed price. Normally, the RIW contract is awarded to the contractor at the time of the production award; it provides for warranty coverage over an extended period, on the order of three to five years. Repair of returned items at a fixed price makes the contractor thoroughly committed to the operational performance of his equipment. It provides incentive for him to improve the reliability of the equipment and to reduce repair costs.

Generally, the contractor will repair all returned LRUs or items that are under warranty, and there will be no in-service repair capability. The service organization will simply return an item to the contractor when test equipment or built-in test equipment (BITE) indicates a failure. Thus the RIW provision extends the contractor's responsibility for his equipment's reliability into the field, and it is expected that the contractor will consider the impact that design decisions have on field reliability. It is also expected that as a result of repairing field failures, and being given freedom to change his design, he will be in a position to improve the reliability of the equipment. Because the contract is for a fixed price, the fewer returns received by the contractor, the lower his costs. In addition, since the contract price is negotiated on the basis of a specific MTBF, the contractor is motivated to make reliability improvements, at no cost to the customer, whenever economically feasible, to reduce his subsequent repair costs further.

Under RIW, if a contractor-initiated change does not affect form, fit, or function of the equipment, the contractor is authorized to make the change and then is required to document and report it to the government in a timely manner. Changes affecting form, fit, or function still require an ECP; however, under RIW, contractors are encouraged to develop and provide no-cost ECPs. This is an essential part of RIW agreements, normally requiring expeditious processing of the ECPs by the government. Experience has shown that contractors will develop such ECPs and will incorporate them into the equipment if the expected savings in maintenance cost will offset the ECP cost. In this way contractor repair costs during the warranty period will be reduced and equipment life-cycle-cost benefits subsequently realized.

Heretofore, the Air Force has taken virtually all of the risk for field reliability performance. The penalty for poor reliability was high operation and support costs or reduced asset availability. Under RIW, the rewards and risks are shared by the contractor and the Air Force, and there are potential benefits for both the government and the contractor.

3.1.1 RIW/MTBF Guarantee

The reliability guarantee, pioneered by the commercial airlines, is now being used by the military as an adjunct to the RIW. Under a conventional RIW, spares and other provisions are purchased in anticipation of an estimated MTBF. Should the item not exhibit the expected MTBF, assets are tied up in the pipeline and, as a result, the equipment is not available for installation and the operational squadrons are unable to support their flight schedules.

Under the reliability guarantee, the manufacturer warrants the operational MTBF of his equipment. If the MTBF value is not achieved in operation, the manufacturer agrees to lend additional spares to the user to support day-to-day operations until the guaranteed MTBF is achieved. Often in airline contracts, and in some existing military contracts, these additional spares become the property of the user if the manufacturer fails to meet the contracted MTBF by the end of the warranty period. The MTBF guarantee is normally procured in association with an RIW.

3.1.2 Warranty Pipeline

The prevailing warranty-repair process for the Air Force, illustrated in Figure 3-1, comprises the following sequence of events:

1. A warranted unit suspected of failure is tested by military personnel at the using activity to verify the failure.
2. If the unit tests "good", it is put back into service or sent to supply as a ready-for-issue spare.
3. If the unit tests "bad", it is shipped, with appropriate data, to the contractor for repair.
4. The contractor receives the unit and verifies the failure and warranty coverage.

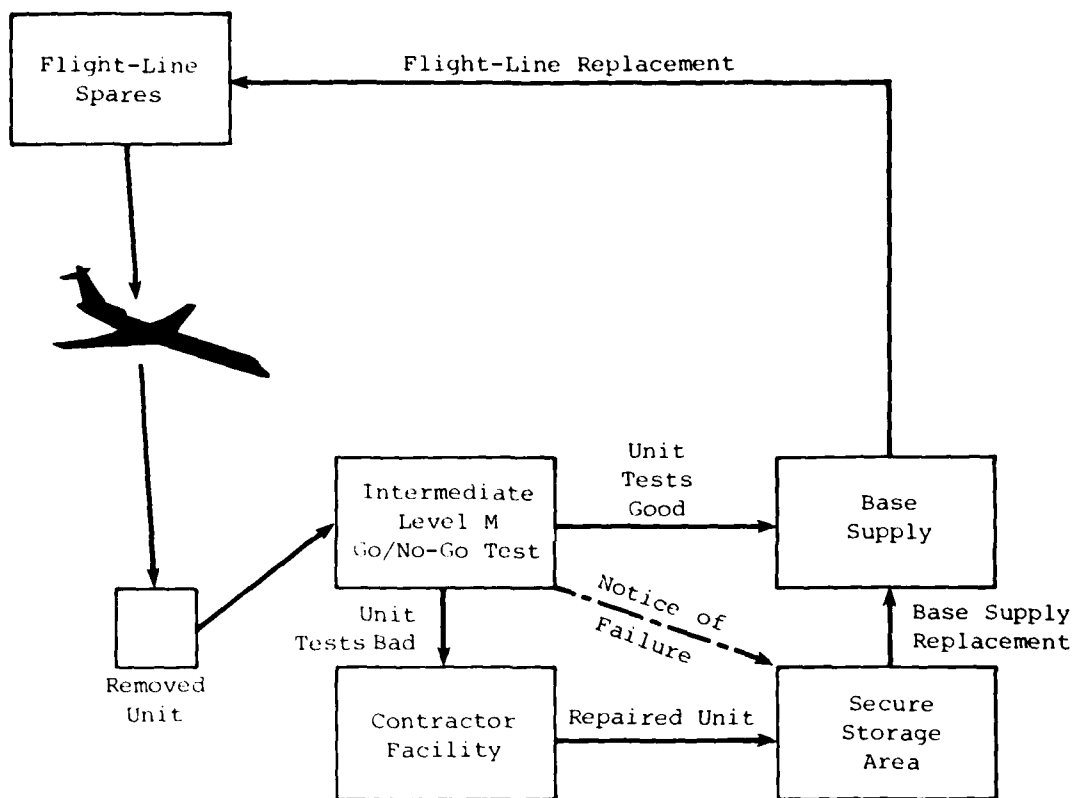


Figure 3-1. WARRANTY PIPELINE UNDER SECURE STORAGE AREA CONCEPT

5. If the failure is not verified or is not covered by the warranty, corroboration by a government representative is obtained. To cover exclusions, a separate repair contract is usually awarded to the contractor.
6. Repair of a covered failure is performed at no additional cost to the government, and required data records are prepared.
7. The repaired unit is usually placed in a secure storeroom maintained by the contractor, pending disposition instructions from the government.

Concurrently with step 3, a notice of failure is sent to the contractor's secure storage area and to the Item Manager (IM), with information copies to other parties as appropriate. A requisition is processed to the IM, who issues a Material Release Order (MRO) to the contractor. The MRO directs that a spare be sent to base supply. The spare will normally reach the base before the failed unit physically reaches the contractor. This shortens the equipment pipeline significantly and, for a given mission schedule, reduces the assets needed to support the schedule.

3.1.3 Summary

Under RIW a substantial portion of an item's operation and support costs is fixed for a definite period. The initial requirements for spare parts, manuals, training, and test equipment are reduced, and these costs are deferred until transition to organic maintenance. At transition, the design will be stabilized, leading to better definition of requirements. However, if the RIW concept is appropriate, it should be introduced as early as possible in the equipment's life cycle so that the contractor will be motivated to design and produce more reliable equipment.

3.2 F-16 RIW CONTRACT BACKGROUND

Procurement techniques developed for the acquisition of an Air Combat Fighter (ACF) included several provisions designed to reduce the system's life-cycle cost. One of these required the contractors responding to the ACF Request for Proposal to determine and propose a Target Logistics Support Cost (TLSC). The TLSC was used, together with acquisition cost and other factors, during the source-selection process. To lend credibility to the TLSC and to motivate the contractor following award, an option to exercise RIW coverage was also included.

On the basis of an analysis of the FLUs* (or LRUs) in the F-16, 12 were selected as "control FLUs". These 12 were selected because they were expected to account for at least 50 percent of the F-16's logistics support cost. The contract provisions allowed the government to place any or all of the 12 under RIW. Further, the government could elect an RIW with an MTBF guarantee.

During 1976, the 12 control FLUs were subjected to cost analysis. In October 1976, the System Program Office entered into negotiations with General Dynamics to extend RIW coverage to the four European Participating Governments (EPGs). As a result of these negotiations, a third type of RIW has agreed upon: RIW at the module level. On 3 February 1977, a separate contract was signed with General Dynamics in which nine FLUs were selected for RIW coverage for all five MFP nations. These nine FLUs and the types of RIW coverage are discussed in Section 4.

*LRU (Line Replaceable Unit) and FLU (First Line Unit) are interchangeable terms. In the text of this plan an LRU/FLU is the first level of disassembly below the system level that would be carried as a line item of supply at base level.

SECTION 4

DESCRIPTION OF THE F-16 RIW PROGRAM

The F-16 RIW encompasses the nine LRUs identified in Table 4-1. The warranty applies to all installs in the first 250 USAF and the first 192 EPG production aircraft delivered (58 to Belgium, 38 to Denmark, 60 to The Netherlands, and 36 to Norway). The warranty also applies to associated spares* procured under Contract F33657-77-C-0191 for the purpose of supporting the first 250 USAF and 192 EPG aircraft.

Table 4-1. F-16 LRU-WARRANTED EQUIPMENT						
LRU-Warranted Equipment			Warranty Level/Period			
WUC	Nomenclature	Manufacturer	1979	1980	1981	1982
14AAO	Flight Control Computer	Lear-Siegler Incorporated				
74AAO	Radar Antenna	Westinghouse				
74ABO	Radar Low Power RF	Westinghouse				
74ACO	Radar Transmitter	Westinghouse				
74ADO	Radar Digital Signal Processor	Westinghouse				
74AFO	Radar Computer	Westinghouse				
74BAO	HUD (Head Up Display)	Marconi Avionics				
74BCO	HUD Electronics	Marconi Avionics				
74DAO	INU (Inertial Navigation Unit)	Singer-Kearfott				
<div> <div></div> LRU-Level Warranty <div></div> Module-Level Warranty <div></div> LRU-Level Warranty plus MTBF Guarantee </div>						

*Associated spares are defined in Appendix A.

4.1 TYPES OF WARRANTIES

4.1.1 RIW at the LRU Level

As indicated in Table 4-1, the warranty period begins at the LRU level for eight of the nine LRUs. Failed units are verified in accordance with the applicable Technical Order (T.O.) and returned to the contractor without further maintenance action.

4.1.2 RIW/MTBF Guarantee

Two of the nine LRUs (Radar Transmitter and HUD Electronics) are also covered by an MTBF guarantee. In addition to requiring the contractor to repair or replace failed units, the MTBF guarantee requires him to provide corrective action as well as additional spares if units fail to meet the MTBF specified in the contract. The actual number of spare units to be provided must be calculated from a formula contained in the RIW contract. If the value of MTBF that is guaranteed to be achieved by the final year of the RIW is achieved prior to that time, as demonstrated by two consecutive measurement periods, then the contractor is released from any further obligations under the MTBF guarantee. The LRUs will, however, remain under the RIW.

4.1.3 RIW at the Module Level

One LRU, the Radar Antenna, starts the warranty period at the module level. Approximately 18 months into the warranty period, 6 additional LRUs will transition to the module level. The actual transition from LRU to module level for the 6 LRUs is contingent upon the ability of the Avionics Intermediate Shop (AIS) test equipment to fault-isolate to the module level and the availability of T.O.s, tools, spare modules, and other items necessary for support.

4.2 ITEMS NOT COVERED BY WARRANTY

The warranty does not apply to: (1) any units delivered to the USAF after the 250th USAF production aircraft, (2) any units delivered to the EPG after the 192nd EPG production aircraft, (3) spare units associated with these production aircraft, (4) third-country assets, (5) assets installed in the AISF/AEB "hot mock-up," or (6) sets used by Lowry AFB for training. The units defined in (1), (2), and (3) may be commingled in the secure storage area. Units defined in (4), (5), and (6) are to be repaired and returned to the sender.

4.3 RESTRICTIONS AND APPLICATIONS FOR WARRANTED LRUs AND MODULES

The first four production aircraft* will be tested at Edwards and Hill AFBs through December 1978, and then all transferred to Hill AFB, the first

*Serial numbers 78-0001, 78-0002, 78-0077, and 78-0078.

operational site. The warranty will not be in effect for the LRU ship sets in these first four production aircraft until January 1979.

Although the contract does not prevent the USAF/EPG from installing warranted units in production aircraft beyond the first 250/192 deliveries, one restriction is that the units must be used only in USAF or EPG F-16 aircraft.

Nonwarranted LRUs may be used in any application, including the first 250/192 aircraft.

Warranted modules will be delivered to active F-16 sites to support the module-level warranty. These modules may be used to repair either warranted or nonwarranted LRUs and they may replace either warranted or nonwarranted LRUs. Likewise, nonwarranted modules will be delivered to support repair of the nonwarranted LRUs that are delivered after the 250th USAF and 192nd EPG aircraft. These modules may also be installed in either warranted or nonwarranted LRUs.

Warranted units should not be placed in WRSKs (War Readiness Supply Kits). If a nonwarranted asset is withdrawn from WRSK, it should be replaced with a nonwarranted asset, if possible.

Units delivered by the manufacturer to GD for testing and installation in production aircraft are not warranted until they are delivered to the USAF or EPG customer.

4.4 THE WARRANTY PERIOD

The nine LRUs are warranted for a period of four years or 300,000 flying hours, whichever occurs first. The four-year period begins upon acceptance of the first production aircraft to be delivered to an operational site. The flying hours apply to the first 250/192 USAF/EPG production aircraft. In the event that less than 250,000 flying hours are accumulated at the end of the four-year period, the price of the contract will be adjusted downward in accordance with the formula specified in the F-16 RIW contract.

4.5 WARRANTY SEALS AND WARRANTY IDENTIFICATION FOR LRUs AND MODULES

4.5.1 LRU Warranty Seals and Identification

Each LRU is marked with a warranty label that provides information applicable to the warranty period and identifies that unit as a warranted unit. The actual warranty seal for LRUs will vary among the four manufacturers of the warranted units. The purpose of the seal is to prevent entry into the LRU. Sealing may consist of paper or plastic seals, coating on the heads of the access screws, or some combination of seals.

Although a broken seal does not automatically result in an exclusion, breaking or damaging a seal may be grounds for a contract exclusion if other evidence exists; therefore, extreme caution must be exercised to ensure that the seals remain intact.

Figures 4-1 and 4-2 show warranty labels and seals on the Radar Transmitter and Flight Control Computer, respectively. Figure 4-3 shows RIW labels for an LRU and a module.

4.5.2 Module Warranty Seals and Identification

Some modules will be similar to LRUs in that they will have a cover or sealed case and, in effect, be a black-box comparable to an LRU. For these modules, the warranty seals and identification labels will be the same as for LRUs. Some other modules, printed circuit boards (PCBs), for example, will not have a metal cover. In these cases, the RIW labels will depend on the physical characteristics of the individual modules; however, the labels will generally be placed on the module connector or on the printed circuit card itself. For these types of modules, the conformal coating applied to the boards for environmental protection will also act as the warranty seal. Since the manufacturer must record all repairs by serial number, and the AFPRO/DCAS inspects LRUs and modules received at the contractor's repair facility, tampering or the lack of it should be easily verified.

4.6 EXCLUSIONS

Damage is excluded from warranty coverage if it occurs while warranted items are in the possession of the government and results from the following causes:

- Fire
- Explosion
- Submersion
- Flood
- Aircraft crash.
- Combat damage
- Tampering by government personnel
- Physical damage caused by accidental or willful mistreatment

There must be clear and convincing evidence that the damage occurred because of these reasons. Damage occurring on the contractor's premises does not qualify as an exclusion. Further, internal physical damage qualifies as an exclusion only if the government determined that it was caused by accompanying external damage. The government representative at the contractor's plant will document the circumstances of the claimed exclusion for future use by the prime contractor's Administrative Contracting Officer (ACO). Whenever an exclusion is claimed by the contractor because of

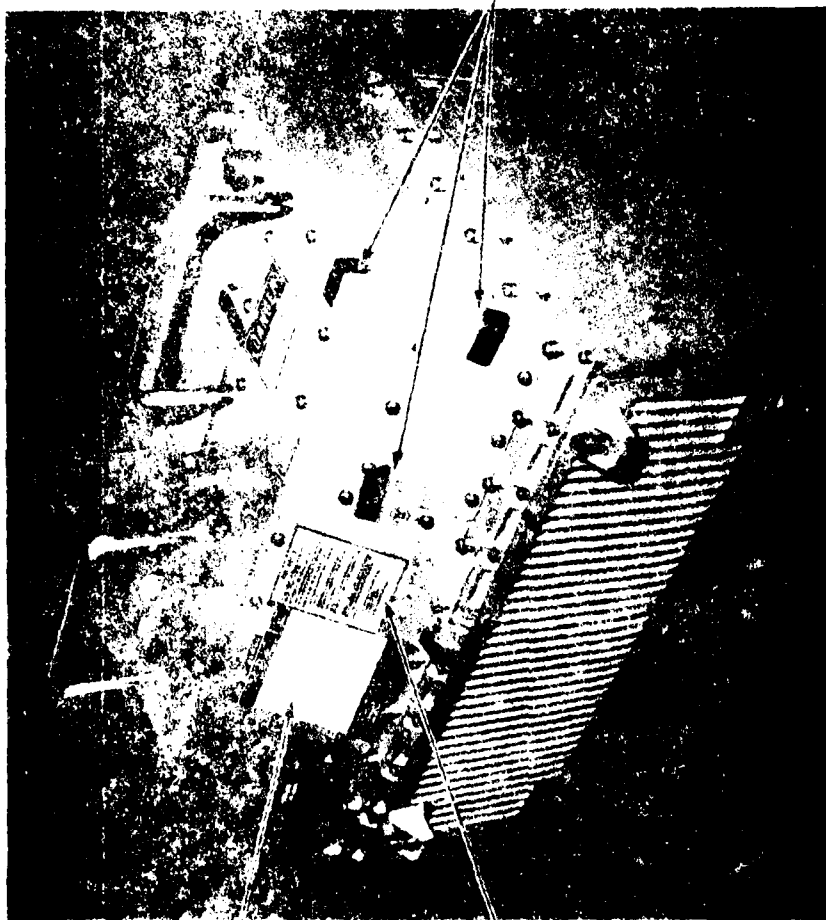


Figure 4-1. RADAR TRANSMITTER

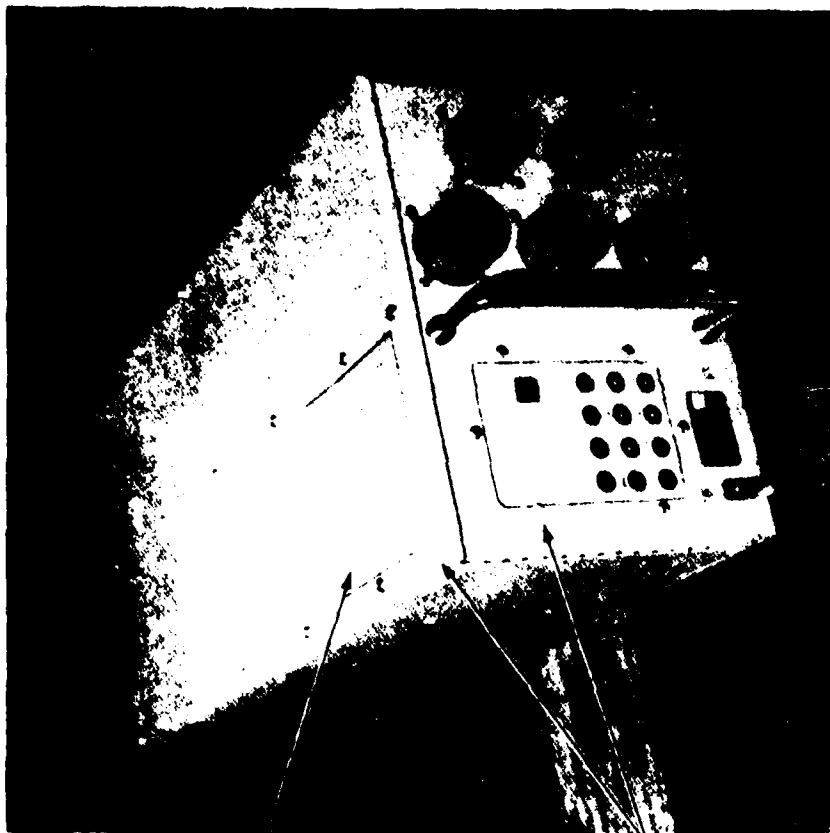


FIGURE 4-2. FLIGHT CONTROL COMPUTER

RIW NOTICE	
THIS UNIT IS UNDER WARRANTY 1 JAN 1979 31 DEC 1982 DO NOT BREAK OR TAMPER WITH WARRANTY SEALS IN CASE OF FAILURE TAKE THE FOLLOWING ACTION	
1 VERIFY FAILURE IN ACCORDANCE WITH APPROPRIATE PDU T O	
2 RECORD COMPLETE FAILURE CIRCUMSTANCE DATA AND BENCH TEST FINDINGS ON AFTO FORMS 349 AND 350	
3 PREPARE DD FORM 1348 1	
4 PROVIDE NOTIFICATION OF FAILURE AND REQUEST A REPLACE MENT UNIT IN ACCORDANCE WITH APPROPRIATE PDU T O	
5 IMMEDIATELY PACKAGE THE FAILED UNIT IN ACCORDANCE WITH APPROPRIATE TPD SPECIFIED ON DD 1348 1 AND SHIP TO THE NEAREST WARRANTY REPAIR FACILITY WITH AFTO 349 AND 350 ATTACHED WARRANTY REPAIR FACILITY ADDRESSES ARE	
MARCONI ELLIOTT AVIONIC SYSTEMS AIRPORT WORKS ROCHESTER KENT ENGLAND ATTN R EVES	E A INDUSTRIAL CORPORATION 4500 N SHALLOWFORD ROAD ATLANTA, GEORGIA 30341 ATTN B STURDY

Typical LRU Label



WARRANTY RESTRICTIONS
THIS UNIT IS COVERED UNDER A RELIABILITY IMPROVEMENT WARRANTY UNAUTHORIZED REPAIR WILL VOID THIS WARRANTY

Typical Module Labels

Figure 4-3. EXAMPLES OF RIW LABELS FOR LRUS AND MODULES

physical damage or unauthorized maintenance and verified by the government representative, the MFP nation responsible is liable for the repair cost. OO-ALC/MMAP is responsible for assuring that the EPGs have means to pay for the repair of exclusions as well as for repair of nonwarranted assets.

4.7 TURNAROUND TIME

The contractor is required to achieve an average turnaround time of 22 days for all warranty repairs measured over 6-month measurement periods. The 22-day period commences when the subcontractor acknowledges receipt of the unit and terminates when the unit is placed in the secure storeroom. Delays attributable to events beyond the control of and without fault or negligence by the contractor are not counted in the turnaround-time calculations. However, if such delays are claimed by the contractor, they should be confirmed by the cognizant ACO.

When repair action is completed, the warranted unit is placed in a secure storage area. Upon receipt of a request to ship (Material Release Order) from the government, the contractor must ship a unit within 1 working day, or a maximum of 72 hours (weekend)*. The beginning of this time period will be the time of receipt by the contractor of the Material Release Order (MRO).

*Since Material Release Orders issued to the Rochester, England, secure storage site will be relayed through the Atlanta division of Marconi, 2 working days or a maximum of 96 hours (weekend) from the time of receipt of the MRO in Atlanta is allowed for each shipment.

If the user judges that there is an emergency calling for the immediate release of a serviceable asset, regardless of weekends or holidays, the Item Manager can seek immediate action via telephone to GD and the applicable subcontractor. Telephone numbers and procedures are given in Appendix B.

If the average turnaround time (TAT) exceeds 22 days and if shipments are missed, the contractor is required to lend additional spare units to the government in accordance with a formula specified in the F-16 RIW contract. The maximum number of spares to be provided is established as the number of days by which the contractor's average TAT exceeds 22 days. The actual number to be provided will be no greater than the number of times within the 6-month measurement period the contractor fails to ship a unit within 1 working day after receiving an MRO.

4.8 ADDITIONAL CONTRACTOR OBLIGATIONS

In addition to the contractual provisions mentioned in the preceding sections, the contractor is also obligated to perform the following actions:

- Maintain configuration control by serial number. All modifications to warranted items, as well as all repair actions, must be documented by serial number. These data will help determine whether an ECP should be developed or that an ECP has been applied.
- Initiate RIW ECPs to improve reliability and maintainability. The F-16 RIW contract encourages the contractor to develop ECPs to improve equipment reliability and maintainability. Such development will be undertaken whenever the contractor determines it to be economically feasible, i.e., he can reduce his cost by initiating and installing an ECP. An improvement in reliability or maintainability will also reduce the MFP nations' logistics support cost and enhance operational readiness. Contractor-initiated ECPs that are not disapproved by the government are incorporated in the equipment at no additional cost to the MFP nations. The no-cost ECP also requires the contractor to upgrade technical data, support equipment, aircraft, etc., to reflect the latest warranted equipment configuration. Further, as failed units are returned, they are repaired and upgraded to the latest configuration. Upon completion of the warranty, the MFP nation will be provided instructions and "kits", which will be used to upgrade to the latest configuration those warranted units which have not been modified. Kit installation will be the responsibility of each MFP nation for its own aircraft.
- Provide RIW-related data as specified in the contract.
- Operate a secured storage area. As spare units come off the production line or repairs are completed on failed units, the units are placed in a secure storage area at the contractor's facility. As Material Release Orders (MROs) are received, the units are shipped to the location designated by the Item Manager.

The contractor has 1 working day or a maximum of 72 hours (weekend) in which to respond to an MRO and ship the replacement unit.

4.9 GOVERNMENT OBLIGATIONS (FIVE PARTICIPATING NATIONS)

Because an RIW contract represents a risk shared by the government and the contractor, the government must be fully aware of its obligations. The following is a summary of the government obligations:

- To the extent practicable, verify the failure, using appropriate procedures and test equipment.
- Furnish to the contractor, to the extent possible, complete failure-circumstance data and test readings, correctly recorded on AFTO Form 350 or equivalent.
- To the extent practicable, use packing and packaging in accordance with MIL-STD-794 for all shipments of the LRUs and modules and include a DD Form 1348-1 (Release/Receipt Document).
- Promptly ship to the contractor each item for which a failure is indicated.
- Notify the contractor that an item is being returned for repair and provide shipping instructions for delivery of a replacement item.
- Provide periodic information to the contractor on accumulated total flying hours of each F-16 aircraft.
- Review and take appropriate action within 35 days of receipt of contractor-initiated ECPs.
- Complete the Installation Record for LRUs with MTBF guarantees (USAF only).

4.10 FLYING-HOUR PROGRAM AND REPORTING

Each of the MFP nations has developed a flying-hour program to meet its particular needs. The planned flying-hour program was used as one of the factors in determining the required number of spares to be covered under RIW; it was also used by the contractor to staff and equip his repair facilities. The planned versus the actual number of hours flown will be useful in determining priorities for spares and in sharing the cost of repairs for unwarranted items. Actual flying hours also affect the warranty period.

Since the warranty period is for 300,000 flying hours or 4 years, whichever occurs first, the actual number of hours flown becomes important to both the MFP nations and the contractor. In addition to areas already mentioned above, the actual flying hours will also assist the government in determining the mean flight hours between failures (MFHBF) of the warranted items.

It is apparent that as more and more unwarranted units enter the system, F-16s will be flying with a mix of warranted and nonwarranted LRUs and modules. To preclude an undue administrative burden, the contractor and the government have agreed to measure the 300,000 flying hours against the first 250 USAF and 192 EPG production aircraft equipped with warranted units, regardless of their subsequent avionics composition.

In the event one or more of the first 250 USAF and 192 EPG production aircraft are accepted by the government without a full complement of warranted equipments installed, the flying hours for those aircraft will not be counted against the 300,000 flying hours. The flying-hour clock for these aircraft will start when the missing warranted equipments are provided to the government by the contractor. Notwithstanding the delayed start of the flying-hour clock for these aircraft, all RIW LRUs that are delivered with the aircraft will be covered under the warranty beginning with the acceptance of the aircraft.

SECTION 5

MANAGEMENT RESPONSIBILITIES

This section presents a description of the broad management responsibilities of the major organizations associated with the F-16 RIW program. More detailed responsibilities will be provided in subsequent sections, which address individual subject areas.

5.1 PROGRAM MANAGEMENT

The Directorate of Integrated Logistics Support, ASD/YPL, within the F-16 System Program Office, has program management responsibility for the F-16 RIW program. YPL has been designated as the Office of Primary Responsibility (OPR) and is tasked to ensure the successful implementation of the F-16 RIW program. RIW management at Ogden Air Logistics Center (OO-ALC) is assigned to MMEA by AFLCR 23-43.

5.2 INVENTORY MANAGEMENT

The F-16 Acquisition Logistics Division, OO-ALC/MMA, of the Directorate of Materiel Management, within Ogden Air Logistics Center (OO-ALC), has inventory management responsibility for the nine types of RIW LRUs and their associated modules for the MFP nations. The tasks of provisioning, inventory management, and subsequent transition to organic maintenance are the responsibility of MMA. Further, since MMA will assume logistics responsibility following F-16 Program Management Responsibility Transfer (PMRT), MMA will play a major role in RIW implementation. Thus YPL and MMA have a dual program-management role.

5.3 PROCUREMENT RESPONSIBILITY

The Procurement Contracting Officer (PCO) for the F-16 RIW Contract, F33657-77-C-0062, is located within the Directorate of Procurement, ASD/YPK. The PCO is the final authority on all contractual matters related to the RIW contract. The PCO is responsible for ensuring that the prime RIW contractor, General Dynamics, fulfills its contractual obligations. The PCO (or other contracting officer designated by the PCO) is the only individual authorized to provide contractual direction to the contractor.

5.4 CONFIGURATION MANAGEMENT

The Directorate of Configuration Management, ASD/YPC, is responsible for all matters relating to configuration management of the nine RIW LRUs.* YPC is responsible for configuration identification, control, and status accounting. The RIW contract requires the contractor to comply with configuration management responsibilities as defined in the F-16 production contract (F33657-75-C-0310). Careful surveillance of the 0310 contract will be required because of the unique relationship between the production and RIW contracts.

5.5 SUPPLY MANAGEMENT

The Directorate of Distribution, OO-ALC/DS, within Ogden Air Logistics Center (OO-ALC), is responsible for the F-16 RIW policies associated with transportation, handling, packaging, and storage for USAF assets and coordination of these policies with the EPGs. As such, it supports MMA, which has worldwide asset responsibility.

5.6 WING-LEVEL LOGISTICS

The Deputy Chief of Staff for Logistics (LG) within the Tactical Air Command Headquarters (HQ TAC) has the responsibility for ensuring that the F-16 operating activities fulfill the government's contractual obligations associated with maintenance, data, supply, and transportation at the wing level.

5.7 EPG MANAGEMENT

The Senior National Representatives (SNRs) currently located within the Directorate of Multinational Programs, ASD/YPX, have the responsibility for coordinating their governments' obligations under the RIW contract. Since the F-16 is a five-nation shared program, the SNRs will play a major role in RIW program management. All RIW decisions affecting the EPGs require concurrence by the SNRs or EPG representatives in the appropriate Multinational Working Group.

5.8 TRAINING

The Air Training Command (HQ ATC) has the responsibility for training maintenance personnel for the organizational and intermediate levels of maintenance of the nine RIW LRUs. However, YPL will provide an implementation training program designed specifically for RIW training for base maintenance personnel (O&I), base supply, and AFPRO/DCAS agents. This

*Some of these responsibilities have been delegated to the contractor AFPRO, who may in turn redelegate to CAS organizations.

initial training is important because of some critical procedural activities of the three groups in implementing the RIW program. Section 8 of this plan provides additional detail pertaining to the schedule of these special implementation training courses. During the first two years of F-16 operations, YPL also has the responsibility for training joint contractor/USAF/EPG field teams. These field teams will be deployed to the first six USAF and EPG sites under the Avionics Interim Contractor Support (AICS) program. The field teams will have maintenance responsibility for the Avionics Intermediate Shop (AIS). Headquarters ATC has training responsibility for organizational maintenance training during this period. OC-ALC has the responsibility for training depot maintenance personnel for the eventual transition from RIW to organic maintenance.

5.9 SITE ACTIVATION

The Directorate of Deployment, ASD/YPD, is responsible for the successful site activations of the F-16. Each operating site will have a Site Activation Task Force (SATAF) of F-16 SPO personnel. The SATAF will be responsible for ensuring that problems associated with RIW implementation are channeled to the proper organizations for resolution. The SATAF will also be responsible for the orientation of base-level personnel in the RIW concept and special treatment of RIW LRUs required by the RIW contract.

5.10 CONTRACT ADMINISTRATION

The Administrative Contracting Officer (ACO) for the F-16 RIW contract is located in the Air Force Plant Representative Office (AFPRO) at General Dynamics, Fort Worth. A delegation-of-authority memorandum between the PCO and ACO assigns contract administration responsibilities and grants contractual authority for clearly defined subject areas. The AFPRO at GD has in turn delegated certain authority to the DCAS representatives in the RIW subcontractor's plant.

5.11 PRIME CONTRACTOR

The prime contractor's responsibilities are contained in separate F-16 contracts (see Subsection 6.1). These responsibilities include effectively managing subcontracts and subcontractor effort required in the performance of the RIW program.

SECTION 6

CONTRACTUAL RELATIONSHIPS

This section addresses several important program relationships and how the overall success of the F-16 RIW program is dependent on them.

6.1 CONTRACTS SUMMARY

Because of the interrelationships among several separate F-16 contracts, a review of these contracts is in order. The contracts are as follows:

- F33657-75-C-0310. This is the basic production contract for the F-16. It contains, in Special Provision J.63, the RIW and RIW/MTBF guarantee options that were subsequently procured under the separate RIW contract. The 0310 contract also requires delivery of the Avionics Intermediate Shop (AIS) equipment needed to permit fault isolation to the module level in accordance with the RIW provisions.
- F33657-77-C-0062. This is the separate RIW contract used solely with regard to RIW provisions. Its major provisions were discussed in Section 4.
- F33657-76-C-0191. This contract requires delivery of associated spares for the RIW LRUs and modules procured. The exact quantities of associated spares covered under the RIW are shown in Appendix A.
- F33657-77-C-0320. This contract requires Avionics Interim Contractor Support at the intermediate maintenance level for RIW items for the first two years of the RIW period (terminated 30 December 1980).
- F33657-80-G-0007 (Order No. 3). This contract was initiated upon expiration of the AICS contract above. It provides for contractor support program assistance (CSPA) for the AIS at F-16 sites during calendar year 1981.
- F42600-79-G-7529. This is a basic ordering agreement between Ogden ALC and General Dynamics. Through this contract, General Dynamics manages the repair of warranty exclusions and assures that the warranty is continued on the repaired asset.

Ogden ALC will award separate contracts to each of the RIW equipment manufacturers to cover the repair of "warranty-like" items that are not covered under warranty (see Section 4.2).

6.2 AVIONICS INTERMEDIATE SHOP (AIS)

Current plans call for all nine RIW LRUs to be tested on the AIS Automatic Test Equipment at the intermediate maintenance level in the Component Repair Squadrons (CRSs). Each AIS system will consist of the following four stand-alone stations:

- Computer and INS
- Displays and Indicators
- Processors and Pneumatics
- RF

Because the test stations will not have full capability at the beginning of the RIW period, it is not known to what degree the AIS will be capable of confirming LRU failures or fault-isolating to the module level. For those LRUs transitioning to a module-level warranty, the contractual provisions were based on the assumption that the AIS would have attained full fault-isolation capability by the time of the transition. Should this capability not be available, entire LRUs will be returned to the RIW equipment manufacturers. As the AIS capability increases, the AICS field teams will complete intermediate-level testing to the degree the maturity of the equipment permits (see Section 7.5.8). Prior to the time the warranty actually transitions from LRU to module level (approximately July 1980), AIS testing will also include fault isolation to the module level; however, seals must not be broken, and neither the LRU covers nor the suspected faulty module are to be removed unless specifically authorized by applicable T.O.s. The purpose of the testing is to facilitate cross-checking by the AIS fault-isolation capability against the actual trouble found by the RIW equipment manufacturer during repair and thus contribute to further maturing of the AIS capability.

6.3 AVIONICS INTERIM CONTRACTOR SUPPORT (AICS)

AICS is planned at the intermediate level for the first two years of the RIW Support Period. The AICS contractor will be responsible for the AIS during this period. One of the primary tasks of the AICS field teams is to transition AIS support capability to the USAF/EPGs. AICS is expected to facilitate the resolution of startup problems that may be encountered during RIW. Further, AICS should enhance the transition from LRU-level to module-level warranties. Maintenance data forms (i.e., AFTO 349) on RIW failures will also be completed by AICS field teams. Additional details on the reporting and processing of failed units during the AICS period are discussed in Section 7.

6.4 CONTRACT SUPPORT/PROGRAM ASSISTANCE (CSPA)

CSPA is a follow-on effort for AICS support. It was recognized that the Air Force intermediate-level shop would not be able to function effectively without supplemental support from General Dynamics beyond the planned transition date of 31 December 1980. The support will be provided as described in Table 6-1.

Table 6-1. LOCATION AND PERIOD OF CSPA COVERAGE			
Organization	Location	Dates of Coverage	
		From	Through
388th TFW	Hill AFB, Utah	1 January 1981	31 December 1981
56th TFW	MacDill AFB, Florida	1 January 1981	31 December 1981
474th TFW	Nellis AFB, Nevada	1 October 1980	31 December 1981
TTC	Lowry AFB, Colorado	1 January 1981	31 December 1981
AISF	Hill AFB, Utah	1 January 1981	31 December 1981
Netherlands	Leeuwarden	1 January 1981	31 December 1981
Denmark	Skydstrup	1 January 1981	31 December 1981
Norway	Rygge	1 January 1981	31 December 1981
USAF Site 4	(Overseas)	1 February 1981	31 December 1981
USAF Site 5	Hahn AB, Germany	1 July 1981	31 December 1981
Belgium	Beauvechain, Site 2	1 January 1981	31 December 1981
Option			
Belgium	Site 1, 2, and Depot	1 January 1982	31 December 1982

6.5 TECHNICAL ORDERS (T.O.s)

During the first 18 months of RIW, verified T.O.s may not be available at the intermediate level. Under AICS, the field teams will be authorized to use whatever engineering data are available to make go/no-go failure decisions and fault-isolate to the module level. Verified T.O.s will be used as they become available. Changes to T.O.s may be required for transitioning to module-level warranties.

6.6 FIRST FOUR PRODUCTION AIRCRAFT

The first four F-16 production aircraft will be flown at Edwards AFB from August through December 1978 and then transferred to the first operational site at Hill AFB. While at Edwards, the nine RIW LRUs will not be

warranted. Failures at Edwards will be repaired under the AICS contract to assure that, upon arrival at Hill, they will be warranted under RIW. No intermediate-level repair at Edwards is authorized. All installs and spare LRUs will be sealed. The seals can be broken only at the contractor's facility.

SECTION 7

RIW IMPLEMENTATION PROCEDURES

Section 5 described in broad terms the RIW management responsibilities of the different organizations associated with the F-16 program, and Section 6 described important program relationships with RIW. This section addresses the effective implementation of RIW in more detail.

7.1 GENERAL RIW MANAGEMENT

Before addressing implementation procedures for the F-16 RIW program, it is appropriate to make some introductory comments on RIW implementation in general. In the introduction to this plan it was acknowledged that RIW represents a departure from "business as usual". Focusing RIW management attention on the procedures that actually need to be changed, and not wasting RIW resources on non-RIW problems, will be one of the major challenges facing the RIW portion of the F-16 program. To assist in meeting this challenge, the remainder of this plan is organized to address only those procedures which must be added, altered, or emphasized because of the warranty.

7.2 RIW PERIODS

For planning purposes, the RIW program is divided into the following three periods:

- Pre-RIW Period
- RIW Support Period
- Post-RIW Period

7.2.1 Pre-RIW Period

The Pre-RIW Period began upon the award of the F-16 RIW contract (February 1977) and will last until actual contractual support of the RIW items begins in January 1979. During this period, the contractor and the

government will be involved in a number of activities required to begin the RIW Support Period. Included among these activities are the following:

- Contractors
 - Develop internal RIW implementation plans
 - Establish warranty repair capability
 - Establish data systems not only to provide contractually required RIW data but also to provide data required to identify reliability improvement needs and the economic feasibility of submitting no-cost ECPs
 - Develop procedures for expeditiously implementing approved no-cost ECPs
- Government
 - Resolve management issues, policies, and procedures
 - Develop Implementation and Management Plan (IMP)
 - Develop training program
 - Review and approve contractor activities

7.2.2 RIW Support Period

The F-16 RIW Support Period begins in January 1979 and lasts for four years or until 300,000 flying hours have been accumulated, whichever occurs first. This period is divided into three phases:

- Phase I, which begins in January 1979 with 8 LRUs under warranty at the LRU level and 1 LRU under warranty at the module level.
- Phase II, which begins when 6 of the 8 LRUs transition to module-level warranties. It is currently the intention of the government to transition all 6 LRUs at the 18-month point, or earlier if AIS fault-isolation capability can be demonstrated before that point. Key activities that must be accomplished prior to transition include:
 - The achievement of a full AIS test capability for the warranted LRUs
 - Validation and verification of T.O.s
 - Availability of spare modules
- Phase III, which begins with delivery of the first F-16 that contains nonwarranted LRUs, currently scheduled for June 1981. In this phase, both warranted and nonwarranted LRUs will coexist.

7.2.3 Post-RIW Period

The Post-RIW Period begins at the end of the warranty period. Although planning for this period is not included herein, it will require as a minimum:

- Establishment of an organic depot repair capability
- Instructions and data for preparing Time Compliance Technical Orders (TCTOs)
- Supply of kits and TCTOs by the contractor to update RIW assets to the latest configuration

7.3 MAINTENANCE PROCEDURES FOR WARRANTED EQUIPMENT

This subsection describes the maintenance procedures for the F-16 RIW equipment and their relationship to the following Air Force Regulations and planning documents (hereinafter cited as references 1 through 5):

- Reference 1 - AFR 66-5, Production Oriented Maintenance Organization (POMO), 17 October 1977
- Reference 2 - TAC Supplement 1 to AFR 66-5, 30 April 1978
- Reference 3 - F-16 Avionics Interim Contractor Support, Field Site Support Operations Plan (F-16PP-262-4), 1 May 1978, Volume 4
- Reference 4 - Memorandum of Agreement (MOA), Hill Air Force Base, Avionics Interim Contractor Support, 15 July 1978; and Memorandum of Agreement, EPG Airbases, Avionics Interim Contractor Support
- Reference 5 - AFLCR 800-7, Reliability Improvement Warranty

7.3.1 On-Equipment Maintenance Procedures (Maintenance at the Aircraft Level)

In accordance with references 1 and 2, USAF F-16 on-equipment maintenance will be performed by TAC maintenance personnel assigned to wing Aircraft Generation Squadrons (AGS). The EPG countries will use their comparable on-equipment maintenance personnel. On-equipment maintenance for the nine RIW LRUs will be limited to fault isolation to the LRU level, using Built-In Test (BIT) and applicable technical orders, and replacement of the faulty LRU. There may be both warranted and nonwarranted LRUs of the same type in the supply system. The warranted LRUs are identified by their seals and decals; however, either type may be installed in any MFP nation F-16A or F-16B aircraft.

The BIT procedures should be followed closely since removal of good LRUs results in additional maintenance costs to both the government and the contractor. It is important for all USAF and EPG bases to furnish

complete and accurate failure-circumstance data on the reparable processing tag (AFTO 350 or equivalent). Such information as "radar video intermittent" or "overtemp indicator comes on in high-G turns" will aid the manufacturer in developing design corrections for reliability problems. If the space provided in block 14 of AFTO 350 is too small to describe the symptoms of failure adequately, additional descriptive information should be written on a separate sheet and stapled to the AFTO 350. On-equipment AFTO 349 forms are to be completed in accordance with normal procedures.

These on-equipment maintenance procedures are applicable throughout the entire warranty period.

7.3.2 Special On-Equipment Procedures for the Radar Transmitter (WUC 74ACO) and the HUD Electronics (WUC 74BCO)

For the two LRUs covered by the RIW MTBF guarantee (i.e., the Radar Transmitter and the HUD Electronics Unit), a special documentation procedure is required. In addition to the normal RIW seals and identification labels, these two units have a placard affixed to the LRU for recording installation and removal data. Figure 7-1 illustrates the form to be used. The aircraft serial number and the install or remove date on this form must be completed by the USAF maintenance technician each time the LRU is installed in or removed from an aircraft regardless of the reason. Julian dates are to be used in the "Install Date" and "Remove Date" columns. It is emphasized that recording accurate dates is important since these dates are to be used by the contractor to calculate the MTBF of the LRU and if a calculated value of MTBF is less than the guaranteed value, the contractor will have to supply additional spares to the MFPNs. The only additional entry in the form required of on-equipment maintenance technicians is recording repair action code "9" any time the LRU is removed from the aircraft but not returned to the shop. For example, if the on-equipment technician removes an LRU as part of a cannibalization action or to gain access to other equipment, he should enter a repair action code "9". Alternatively, if he removes the LRU for a suspected failure and returns it to the shop, he should make no entry in the Repair Action Code column. (If an off-equipment technician determines that a removed LRU is a RTOK, he enters the "5" code before the unit is processed back to base supply for reissue.)

Repair codes 1, 2, and 3 are for the contractor's use only and are used to report his incoming-test results. The contractor will replace the Installation Record placard with new placards as necessary.

7.3.3 Issue and Receipt Procedures

The only other procedure different from those called out in references 1 and 2 pertains to the form used for issue and receipt of replacement LRUs. Since Hill AFB is an Air Logistics Center, AFLC Form 244 will be used in lieu of the AF Form 2005. The USAF site to be activated after Hill will use the AF Form 2005. The European countries will use forms and procedures as specified in Appendixes A through D of reference 3 throughout the RIW period.

module returned to the manufacturer for repair under warranty. It is important to record, in Block 15 of the Reparable Processing Tag (AFTO 350 for USAF or equivalent for EPGs) that is to be returned with the reparable module, a description of the AIS test results, including the identification of the specific test failure that led to removal of the module. If a copy of the AIS diagnostic printout is available, it should also be stapled to the AFTO 350 tag.

If the AIS is not capable of confirming LRU failures or fault-isolating to the module level, or is not operable, the entire LRU will be returned to the manufacturer. When this occurs, the Reparable Processing Tag will be annotated in Block 15 to reflect the AIS circumstances and, during the AICS period, will be certified by the AICS field team supervisor. After the termination of AICS support, normal NRTS processing with the appropriate NRTS codes will be used.

7.3.4.2 Radar Transmitter (WUC 74ACO) and HUD Electronics Unit (WUC 74BCO)

The warranty on the Radar Transmitter and HUD Electronics Unit is at the LRU level throughout the warranty period. In the same manner as discussed above, during the AICS period, if the AIS is not capable of confirming failures or is not operable, these circumstances will be annotated on the Reparable Processing Tag and certified by the AICS field team supervisor. AIS shop maintenance personnel will inspect the installation/removal placard on these two LRUs and assure that they have been properly completed before accepting the units into the shop. The LRUs will not be accepted into the shop until attempts have been made to acquire missing data or correct obvious errors through the use of data on AFTO 350 or other documentation. Without the data on the placard, the MTRP guarantee has no value to the Air Force.

When the AIS is available, it will be used to confirm the failure of the LRU. In addition, subject to the maturity of the AIS, fault-isolation to the module level will be attempted. HOWEVER, NO ATTEMPT WILL BE MADE TO REMOVE THE LRU COVERS OR THE SUSPECTED FAULTY MODULE. The purpose of using the AIS to attempt to fault-isolate to the module level is to determine the maturity of the AIS equipment, not to repair the LRU. It is therefore important to record the AIS test results in Block 15 of the AFTO 350 (or equivalent).

7.3.4.3 All Remaining RIW LRUs

For the first 18 months (January 1979 through June 1980), the off-equipment maintenance procedures for the remaining 6 LRUs (see Table 4-1) will be identical to those discussed above for the Radar Transmitter and HUD Electronics Unit. However, in July 1980, subject to maturity of the AIS equipment, the warranty will transition from the LRU to module level. When this occurs, the procedures will then be the same as for the Radar Antenna discussed in Subsection 7.3.4.1. As indicated therein, lack of AIS capability during the AICS period will be certified by the field team

supervisor on the Repairable Processing Tag, and the entire LRU will be returned to the manufacturer. With AIS capability, the LRU will be fault-isolated, the faulty module replaced, the serviceable LRU returned to supply, and the reparable module returned to the manufacturer for repair under warranty.

7.3.5 Additional Maintenance Considerations

During the module-level warranty period, it is expected that there will be LRU failures where the AIS fault-isolates to a group of two or more modules rather than to a single module. When this occurs, and when maintenance procedures allow, progressive substitution of good modules should be made until the faulty module is identified. Good modules used for substitution are to be returned to supply as serviceable. All failed modules should be returned to the manufacturer. If a failure is identified to a component not authorized for replacement at the intermediate level, the entire LRU should be returned to the manufacturer for repair. Under the AICS contract the field teams will be authorized to use whatever engineering data are available to make go/no-go failure decisions and fault-isolate to the level permitted by the warranty. The AICS assistance will be available at all EPG and the first two USAF F-16 sites through December 1980. This knowledge and experience should be used as much as possible to make the warranty a successful program. Detailed AICS procedures are contained in the AICS Field Site Support Operations Plan (reference 3) and Memorandum of Agreement (MOA), Hill Air Force Base, Avionics Interim Contractor Support, 15 July 1978 (reference 4).

7.3.6 On-Base Equipment Processing

On-base processing of F-16 RIW equipment does not require any new procedures. Current procedures are specified in references 1 and 2. However, during the AICS support period, alternative procedures are required to establish the interface between the AICS field teams and the normal base reparable processing. These procedures, including flow diagrams, are included in the AICS Field Site Support Operations Plan (reference 3). The basic difference is that the AICS field teams perform many of the functions normally performed by the TAC Component Repair Squadrons (CRSSs). At the conclusion of the AICS in December 1980, the normal CRS operation, as depicted in reference 2, will be resumed.

7.3.7 Not Repairable This Station (NRTS)/Retest-OK (RTOK) Equipment

It may be necessary during the module-level warranty period to return complete LRUs to the equipment manufacturer as NRTS items. Even though the test equipment fault-isolation capability exists, it can realistically be expected that because of nonmodule failures or failure of the AIS to diagnose, some LRUs will be NRTS items. In addition, it can also be expected that some items returned will retest-OK at the manufacturer's repair facility. Excessive numbers of items in these categories must be avoided because they involve additional maintenance cost to the government and the contractor.

7.3.8 Maintenance Data Requirements

Under the terms of the RIW contract, the government is required to furnish failure-circumstance data and test readings, correctly recorded on the AFTO Form 350, "Reparable Item Processing Tag," or equivalent. The completion of the AFTO Form 350 is not a new requirement. References 1 and 2 cite procedures to be followed in completing the AFTO 350. If additional space is required for completing Blocks 14 and 15, a separate sheet may be used to describe more fully the symptoms and BIT/AIS test results. This additional information, together with a copy of the AIS diagnostic printout, is to be stapled to the AFTO 350. While the AFTO 350 form and the procedures for completing it are not new, the data contained on the form are more significant under the F-16 RIW program. The form, attached to the failed unit returned to the manufacturer, conveys failure-circumstance documentation that is important in evaluating field operation and test conditions. It is therefore important to convey as much information as possible on the form -- for example, "fails after 15 minutes of operation," or "fault is not intermittent." It should also be documented as to whether BIT or a pilot squawk identified the problem. The AIS diagnostic printout should be stapled to the AFTO 350.

The existing procedures in references 1 and 2 require attachment of the AFTO 350 to the discrepant unit. This procedure will also be followed for the F-16 RIW equipments. For the USAF, the maintenance Repair Cycle Monitor (RCM) within the Reparable Asset Control Center (RACC) will be responsible for ensuring (1) that the AFTO 350 is complete, (2) that a copy of it is attached to the failed item (see paragraph 2-96 of reference 1), (3) that the AIS diagnostic printout is stapled to the AFTO 350, and (4) that the installation/removal placards on all radar transmitters and HET EUs are complete.

All RIW items (LRUs and modules) are identified by an asterisk (*) in the Work Unit Code manuals. This indicates that they require special documentation in accordance with the 00-20 series T.O.s. Specifically, when an RIW LRU is removed and replaced on the aircraft, an on-equipment record (AFTO 349) is required. For the removed LRU, a second AFTO 349 is necessary to record the off-equipment maintenance action. Should the LRU be repaired by replacing a module, a third AFTO 349 is prepared to record this action; and, finally, for the removed module, a fourth AFTO 349 is required to document the disposition of the module. Figure 7-2 provides examples of these four AFTO 349 forms and identifies the T.O. references that were used to complete the forms.

It is important to complete accurately all information required on these AFTO 349 forms so that the contractor, who has access to the information, will be aided in his evaluation of any reliability problems. It is also important for the Air Force to have this information for evaluating and managing the RIW program as required by reference 5. Copies of the AFTO 349 and 350 forms are reproduced in Appendix C.

MAINTENANCE DATA COLLECTION RECORD															JMB NO 21-80227			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
JOB CONTROL NO	WORK CENTER	NO SERIAL NO	WOS	SMC	TIME	PHI	8	9	10	11	12	13	14	15	16	17	18	19
3194015	A4120	AA0018			0002													
10	ENG TIME	11	ENGINE	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
19	120	646R483G01	979420001	698	646R483G01	0025												
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
1	B	74AAC	R	D	383	1	1000	319	1400	2	1							00055
2																		
3																		
4																		
5																		
26	DISCREPANCY Rider will not be tested																	
27	CORRECTIVE ACTION Remove and Replace antenna																	
RECORDS ACTION																		

AFTO FORM 349 PREVIOUS EDITION IS OBSOLETE

- (a) On-Equipment Maintenance Record (Reference T.O. 00-20-2-2, Table 2-2, Rule 2)

MAINTENANCE DATA COLLECTION RECORD															JMB NO 21-80227			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
JOB CONTROL NO	WORK CENTER	NO SERIAL NO	WOS	SMC	TIME	PHI	8	9	10	11	12	13	14	15	16	17	18	19
3194015	A4120	AA0018																
10	ENG TIME	11	ENGINE	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
19	120	646R483G01	00102	698														
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
1	B	74AAC	F	D	383	1	1500	319	1630	1	1							0035
2																		
3																		
4																		
5																		
26	DISCREPANCY Antenna installation in A19. Failed test # x12																	
27	CORRECTIVE ACTION Remove and replace Antenna																	
RECORDS ACTION																		

AFTO FORM 349 PREVIOUS EDITION IS OBSOLETE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
LINE NO	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	120	646R483G01	74AAA															

- (b) Off-Equipment Maintenance Record (Reference T.O. 00-20-2-10, Table 1-1, Rule 1)

Figure 7-2. AFTO 349 FORMS

(continued)

MAINTENANCE DATA COLLECTION RECORD																		JMB NO 21-40237
1. JOB CONTROL NO	2. WORKCENTER	3. D NO	4. SERIAL NO	5. MOD	6. SMC	7. TIME	8. PRI	9. SORTIE NO	10. LOCATION	11. ENG TIME	12. ENGINE D	13. INST ENG TIME	14. INST ENG D	15.	16.	17. TIME SPC	18. JOB STD	
3194015	A4120																	
19. FSC	20. PART NUMBER	21. SER NO	22. TAG NO	23. INST ITEM PART NO	24. SERIAL NUMBER	25. OPER TIME												
1270	681R020G01	0015	741	681R020G01	0027													
26. DISCREPANCY																		
27. CORRECTIVE ACTION																		
28. RECORDS ACTION																		

AFTO FORM 349 MAY 79 PREVIOUS EDITION IS OBSOLETE.

- (c) LRU Maintenance Action - Remove and Replace Module (Reference T.O. 00-20-2-10, Table 2-1, Rule 2)

MAINTENANCE DATA COLLECTION RECORD																		JMB NO 21-40237
1. JOB CONTROL NO	2. WORKCENTER	3. D NO	4. SERIAL NO	5. MOD	6. SMC	7. TIME	8. PRI	9. SORTIE NO	10. LOCATION	11. ENG TIME	12. ENGINE D	13. INST ENG TIME	14. INST ENG D	15.	16.	17. TIME SPC	18. JOB STD	
3194015	A420																	
19. FSC	20. PART NUMBER	21. SER NO	22. TAG NO	23. INST ITEM PART NO	24. SERIAL NUMBER	25. OPER TIME												
1270	681R020G01	0015	741	681R020G01	0027													
26. DISCREPANCY																		
27. CORRECTIVE ACTION																		
28. RECORDS ACTION																		

AFTO FORM 349 MAY 79 PREVIOUS EDITION IS OBSOLETE.

- (d) Module Disposition Action (Reference T.O. 00-20-2-10, Table 1-1, Rule 1)

Figure 7-2. (continued)

7.3.9 Additional Maintenance-Related Data

Four additional data items are to be provided to the contractor by the government:

- Number of warranted installs delivered (less any lost or condemned)
- Flying hours
- Maintenance actions
- EPG maintenance-related data

7.3.9.1 Number of Units Installed

Any installation modifications, as well as information on lost or destroyed aircraft, will be reported to GD by the F-16 System Manager (SM). The individual Item Manager (IM) will provide such information to GD on LRUs or modules that have been condemned or destroyed. It is presumed that unless such notification is issued by the SM or IM, the number of units installed for each LRU type is the same as the number of production aircraft delivered under the 0310 contract. This number will be used by the contractor for computing MTBF.

7.3.9.2 Flying Hours

The flying-hour data have been requested by the contractor via AFLC/AFSC Form 13. Each month, the contractor will receive G033 data on a magnetic tape. These data will include flying hours for all USAF and EPG F-16 aircraft, by tail number and by command.

7.3.9.3 Maintenance Actions

Unit maintenance actions also will be supplied automatically through D056. Records will include both "on" and "off" equipment maintenance actions.

7.3.9.4 EPG Maintenance-Related Data

Maintenance and flying-hour data for the EPG countries, comparable to USAF data, will be provided through the B-3500 computer terminal at Camp Newamsterdam in The Netherlands. A Front-End Processor (FEP) has been installed at the B-3500 terminal that accepts maintenance and utilization information in format conventional to each EPG and translates it to the conventional USAF format. The reformatted data are transmitted via AUTODIN to AFLC. The maintenance data enter the D056 system, and the flying-hour data enter the G033 system.

7.4 TRANSPORTATION MANAGEMENT

7.4.1 Transportation and Handling

General procedures to be used by the five MFP nations for the transportation and handling of reparable and serviceable RIW material are included in the following transportation regulations:

- USAF (Reparable and serviceable)
 - DoD 4500.32 and DoD 4500.32R, Military Standard Transportation Movement Procedures (MILSTAMP)
 - AFM 75-2, Military Traffic Management Regulation
 - AFM 75-1, Transportation of Materiel
- EPG (serviceable only)
 - DoD 4500.32 and DoD 4500.32R, Military Standard Transportation Movement Procedures (MILSTAMP)
 - AFM 75-2, Military Traffic Management Regulation
 - AFM 75-1, Transportation of Materiel
 - AFM 67-1, Volume IX, Part I, Chapter 7, Military Standard Requisition Issue Procedures
 - AFM 75-43, Transportation of FMS Material
 - AFM 400-3, Foreign Military Sales
 - DoD 5105.38D, MAP Address Directory (MAPAD)
 - AFR 205 Series
 - F-16 Integrated Logistics Support Plan
 - Letters of Agreement between the EPG, General Dynamics, and the USAF

Reparable returns from each EPG country will be made to the designated contractor plants in accordance with the transportation plan and regulations of that country. The transportation plans for the EPGs are contained in the ASD/YPL document "F-16 Multinational Transportation Plan," dated 25 October 1979.

The Transportation Operations Division at Ogden, Utah, OO-ALC/DST, is responsible for traffic and transportation guidance for the F-16 RIW program.

7.4.2 Transportation Procedures

The following transportation procedures are to be followed:

- All serviceable RIW material will be shipped from the area located at the contractor's facility to the consignee on DD Form 1348-1 (DoD Single Line Item Release/Receipt Document) or DD Form 1149 (Requisition and Invoice/Shipping Document).

- All reparable RIW material will be shipped by USAF and EPG users to the contractors' designated repair facilities on DD Form 1348-1 or equivalent.
- Shipments of RIW materials will use the Uniform Material Movement and Issue Priority System (UMMIPS).
- Shipments of classified material will be in accordance with DoD 5200-1R, AFR 205-1, AFM 10-4, and AFM 10-5 for the USAF, and AFM 400-3 and AFR 75-43 for the EPGs. Reparables will be returned from the EPGs in accordance with each country's security regulations.

7.4.3 Transportation and Packaging Funding

Transportation and packaging costs for the F-16 RIW program are the responsibility of MFP nations on an individual, as-used basis:

- Shipments from the EPGs to the contractors will be via a prepaid Commercial Bill of Lading (CBL) through the country-designated freight forwarder (F/F). Shipments to the EPG F/Fs will be via a collect CBL.
- Shipments between the USAF bases and the contractors will use a Government Bill of Lading (GBL) or other U.S. Government-approved methods. Shipments of HUDs and HUD Electronics Units from Marconi-Elliott in England to a USAF base will be on military freight warrants issued by the Transportation Management Officer, DET 17, London, England.

7.4.4 Damage Reporting

The requirements of AFM 67-7, AFR 75-18, and AFM 75-35 apply in the reporting of carrier damage to RIW items shipped to or by the USAF.

The AFPRO/DCAS Transportation Officer will document carrier damage on RIW items received from EPGs and advise the designated freight forwarder within 72 hours of receipt of the damaged item. For shipments received by EPG bases or freight forwarders in a damaged condition, a Report of Item Discrepancy (ROID), Standard Form 364, will be submitted in accordance with AFM 67-7, AFR 75-18, and AFM 75-35.

7.4.5 Shipment Times

Shipment time between the contractor and the users is a major determinant in the sufficiency of spares levels and aircraft readiness. It is important that the USAF and EPG users evacuate RIW reparables promptly and utilize expedient shipment modes to assure that shipment times achieved are consistent with those used for determining spares quantities. The USAF and EPG countries have agreed to develop transportation plans that will permit the movement of reparable and serviceable RIW assets within the time objectives shown in Table 7-1. Notwithstanding these objectives, the USAF

will, to the extent possible, conform to the UMMIPS priority system referred to in Section 7.4.2. The UMMIPS objectives, which are more constraining than those of Table 7-1, are as follows:

- Serviceable Assets
 - CONUS to overseas (EPG or USAFE) 11 days
 - Shipments within CONUS 7 days
- Repairable Assets
 - Overseas to CONUS 11 days
 - Shipments within CONUS 7 days

Table 7-1. SHIPMENT-TIME OBJECTIVES FOR MOVEMENT OF RIW ASSETS		
Time Segment	Time (Days)	
	USAF	EPG
Flight line to shop	1	1
Shop testing	2	2
Base packaging, inspection, and delivery to major carrier	3	3
Major carrier to freight forwarder (F/F)	0	3
F/F processing and shipment to repair contractor	-	8
Major carrier to repair contractor	4	-
Repair time	22	22
Repair contractor to F/F	-	3
F/F processing and major carrier transportation	-	7
Customs processing and major carrier transportation to base	-	2
Repair contractor to base	6	-
Base unpacking/inspection to stock	1	1

7.4.6 Packaging for RIW Components

Where MIL-STD-794 level C packaging and packing is designated on the applicable Transportation Packaging Order (TPO) for the item being shipped,

this level of protection is authorized for the RIW/LRU or module being returned to the contractors from a USAF or EPG base. Where level C is not designated, level B or A requirements will apply. The container in which the replacement item is received will be used to package the reparable item being returned to the contractor.

When a warranted component (LRU or Module) is packaged for shipment to the contractor, the packaging agency should assure that the words "M/F F-16 RIW" are included on the mailing label, following the street address.

7.4.6.1 Transportation Packaging Orders (TPOs)

Normally, copies of TPOs are distributed to base packaging organizations through the use of the Stock Number Users Directory (SNUD). Organizations requiring copies of TPOs that do not currently use the SNUD system for this purpose may request the required TPOs from:

Ogden Air Logistics Center
Hill Air Force Base, Utah 84056
ATTENTION: Code DSTCM

7.4.6.2 Fast Pack Containers

Many RIW components, particularly modules, will be packed in Fast Pack containers, and the applicable TPO will reference the designator for the container to be used. These Fast Pack containers are available through supply channels and are identified by NSN in Table 7-2.

7.4.6.3 Other Packaging Containers

In addition to the Fast Pack containers, other containers may also be used for F-16 RIW components. These will be available through supply sources, and the NSN will be identified on the applicable TPO. This information can also be requested from 00-ALC/DSTCM. Containers that are not stock-listed must be locally manufactured in accordance with the TPO for the item. These containers are limited to fiberboard or wood product containers.

7.4.6.4 Contractor Packaging of Repaired RIW Components

Packaging requirements for the contractors are contained in the RIW contract and conform to the packing established for spare components.

7.4.6.5 Reporting Improperly Packaged Items

The requirements of AFR 71-13 apply for reporting the receipt of improperly packaged RIW items by the user from the contractor, or by the AFPRO/DCAS representative for RIW items received at the contractor's facility. A copy of the DD Form 6 will be provided to 00-ALC/DSTCM. Timely reporting is essential to preclude further damage and facilitate solutions to identified problems.

Table 7-2. FAST PACK CONTAINERS/NSN CROSS REFERENCE		
Designator	NSN	Size (ID) (Inches)
Type I - Vertical Star		
XA1	8115-00-192-1603	6 x 6 x 10
XA2	00-192-1604	8 x 8 x 12
XA3	00-192-1605	10 x 10 x 12
XA4	00-134-3655	12 x 12 x 14
XA5	00-050-5237	12 x 12 x 18
XA6	00-134-3656	14 x 14 x 16
Type II - Folding Convuluted (Slide)		
XC1	8115-00-787-2142	6 x 5 x 2-1/2
XC2	00-787-2147	6 x 5 x 3-1/2
XC3	00-101-7647	9 x 6 x 2-1/2
XC4	00-101-7638	9 x 6 x 3-1/2
XC5	00-787-2146	12 x 8 x 2-1/2
XC6	00-787-2148	12 x 8 x 3-1/2
XC7	01-019-4085	18 x 12 x 2-1/2
XC8	01-019-4084	18 x 12 x 3-1/2
XC9	01-057-1244	10 x 10 x 3-1/2
XD1	01-057-1243	13 x 13 x 3-1/2
XD2	01-057-1245	16 x 16 x 3-1/2
Type III - Telescoping Encapsulated (FTC)		
XE1	8115-00-516-0242	30 x 16 x 14
XE2	00-519-1825	32 x 12 x 14
XE3	00-550-3558	24 x 14 x 14
XE4	00-516-0251	20 x 14 x 9
XE5	00-550-3574	25 x 14 x 14
XE6	01-015-1315	32 x 18 x 16
XE7	01-015-1312	24 x 18 x 16
XE8	01-015-1313	26 x 9 x 9
XE9	01-015-1314	34 x 24 x 18
Type IV - Horizontal Star Packs		
	8115-00-101-8956	20 x 14 x 14
	01-006-7257	22 x 16 x 16
Plastic Fast Packs (Type I - Vertical Star)		
XA1	8115-00-044-8101	6 x 6 x 10
XA2	01-043-8496	8 x 8 x 12
XA3	01-044-1053	10 x 10 x 12
XA4	01-044-1055	12 x 12 x 14
XA5	01-044-7191	12 x 12 x 18
XA6	01-044-1056	14 x 14 x 16

7.4.7 Storage

The F-16 warranted LRUs/modules will be stored in their reusable shipping containers.

7.4.8 Customs Procedures

All F-16 RIW items are to be accorded "duty-free entry." This includes reparable assets being returned to the contractor from an EPG base, serviceable assets being sent by the contractor to an EPG base, and the serviceable assets being shipped between MFP nations.

Customs processing for the movement of EPG reparables to the contractor and returning serviceable assets are the responsibility of the EPG-designated freight forwarder.

Customs processing for the movement of serviceable assets between EPG countries will be established in bilateral agreements between the countries involved.

7.5 INVENTORY MANAGEMENT

Inventory management responsibilities for the F-16 RIW program have been assigned to OO-ALC/MMA, Ogden Air Logistics Center. F-16 RIW implementation procedures applicable to inventory management, the role of the Item Manager (IM), and the IM's association with the contractor and MFP users of RIW assets are discussed in the following subsections.

7.5.1 RIW Assets

The F-16 RIW assets consist of the nine RIW-designated LRUs (ship sets) in each of the first 250 USAF and 192 EPG F-16 production aircraft and their associated spares. In determining the number of spares that are warranted, factors such as equipment reliability (on an individual LRU or module), planned flying-hour program for each MFP country, pipeline time, and repair time must be considered. The average repair time is fixed by contract at not greater than 22 days, and the requirements for transportation times are as discussed in Subsection 7.4.5. Although the transportation times can be controlled or influenced by OO-ALC/MMA, equipment reliability and planned versus actual flying hours are outside MMA's control and subject to change. Because there is a potential for fluctuation in these factors, and since it is desirable to fix the contractor's liability, it is necessary to define the quantities of spares to be warranted. These quantities are listed in Appendix A.

There will be nonwarranted assets in the Avionics System Integration Facility/Avionics Engineering Bench (AISE/AEB), in WRSK kits, in developmental aircraft, in training facilities, and in all aircraft deliveries beyond the 250th USAF and 192nd EPG aircraft. The total inventory to be managed by the IM will therefore consist of both warranted and nonwarranted assets.

7.5.2 LRU and Module Warranty Pipelines and Stock Points

Figure 7-3 illustrates the LRU Warranty Pipeline and Stock Points. Control over the process is established through the AUTODIN system, which provides the medium for the message traffic. The only difference in the pipeline after transitioning to module-level warranty will be that the Component Repair Squadron (Base AIS Test) will draw a serviceable module from base stock, install it in the LRU, and return the LRU to serviceable status. The reparable module will be returned to the contractor's repair facility.

7.5.3 Commingling of Assets

The total number of spares needed to support each of the MFP nations independently would be substantially higher than if the pipeline spares were pooled and used jointly. Accordingly, in the interest of cost saving, and in the spirit of the F-16 partnership, F-16 spares for the RIW program pipeline have been purchased in quantities that will assure high readiness levels only if they are jointly used. In addition to these warranted spares, the spares needed to support nonwarranted, RIW-like equipments (such as ship sets subsequent to the 250th/192nd aircraft) have also been purchased in reduced quantities. These spares require joint use if high readiness levels are to be maintained. This joint-use policy has unanimous agreement of all MFP nations. The EPGs have assigned logistics liaison officers (such as MMA-L-NE) to the Ogden ALC. EPG supply problems will be reported to these liaison officers who will, in turn, coordinate the resolution of these problems with MMAD.

As the purchased spares are accepted by the U.S. government, some will be placed in a secure storeroom. Via amended shipping instructions (ASI), the IM will cause some of these assets to be pre-positioned at the base supply of designated sites prior to site activation. Also, via an MRO, the IM will release replacement spares upon receipt of a requisition in accordance with agreed-to priorities and as long as serviceable spares are available in the secure storeroom.

LRUs and modules purchased to support other than MFP aircraft (e.g., third country) will not be commingled or jointly used with MFP spares.

At the conclusion of the warranty, MFP pipeline spares will be divided among members on the basis of individual contributions to the original cost of the assets.

7.5.4 Operation of the Secure Storage Areas

Five secure storage areas have been designated as depot stock points for RIW LRUs and modules. These stock points, shown in Figure 7-4, are collocated at the respective equipment manufacturers' plants and repair locations. Only the Item Manager has authority to direct the withdrawal of a serviceable item from the secure storage area. Such withdrawal is accomplished by the issuance of a Material Release Order (MRO) by the IM

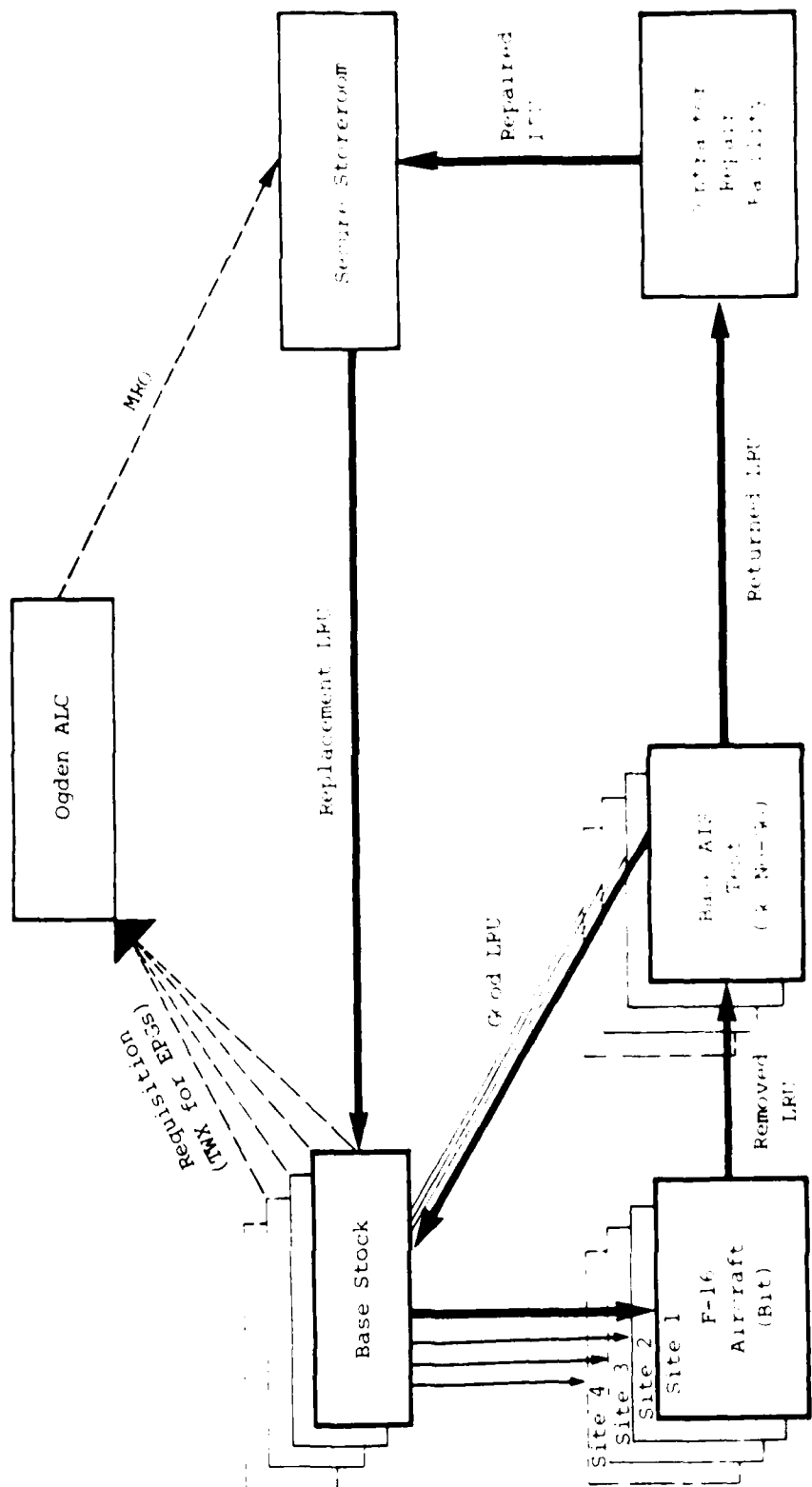


FIGURE 1. LRU WARRANTY GUIDELINES AND SUPPORT FLOW

in the secure storerooms will be under the control of the Item Manager. While it is true that fewer total assets are required under the commingling concept, sufficient assets have been procured to support the total MFP nation pipeline requirements with a minimum of delay or back order of requisitions. However, a lack of proper management intensity in the areas of supply discipline, maintenance concepts, timely evacuation of reparable, and application of premium transportation by any of the partners could jeopardize the total support posture of the F-16.

The Item Manager will maintain the integrity of each country's stock levels by providing a serviceable replacement for each reparable returned. If assets are available in the secure storeroom, response to requisitions will be within 1 working day, or a maximum of 72 hours for weekends (see Section 4.7). If assets are not available in the bonded storeroom, requirements will be back-ordered against assets due in from repair. Back orders will be released on a first-in, first-out basis. Exceptions to this order of release, e.g., to relieve a "not mission capable" condition, will be at the discretion of the Item Manager.

Reparable and serviceable in-transit and shop flow-time records will be maintained and will receive continuous review by the Item Manager. Should this record indicate excessive in-transit or flow-times, management action will be instituted at a level commensurate with the problem to ensure that corrective action is taken in accordance with the terms of the contract.

Reparable assets will be shipped by premium transportation under supply priority 03 and serviceable assets will be shipped under priority 02. Failure to return reparable assets in a timely manner will create immediate shortages in the total system. A report of shipment (RESHIP) is required from the EPUs on all reparable returns to the vendor. The Transportation officer of the shipping activity is responsible for preparing the RESHIP. The RESHIP should be transmitted in accordance with Subsection 7.6.3.1.

7.5.6 Transitioning from LRU to Module Level

As indicated in Section 4 (Table 4-1), the radar antenna warranty is at the module level throughout the warranty period and, by July 1980, six additional LRUs are to transition from LRU to module-level warranty. There are six key requirements for the transition:

- AIS capability to fault-isolate to the module level
- Technical data, including maintenance Technical Orders for fault-isolation and repair procedures
- AICS field team training at the module level completed
- Tools and test equipment (to augment AIS) in place
- Adequate stock of spare modules in supply
- User supply systems programmed for module supply management and reparable processing transactions

The final decision to transition to module warranty will be made by ASD/YPL contingent upon the concurrence of TAC and other user organizations. These organizations will provide information to ASD/YPL before the decision is made. For example, the Item Managers and System Manager must confirm that technical data, tools, and test equipment are adequate and that adequate stocks of spare modules are available. The using commands must confirm that the AICS field team training and AIS fault-isolation capability is adequate to support their operational flying programs.

It will be necessary to track progress in meeting the foregoing requirements on an individual LRU basis to permit incremental transition of the LRUs in the event all requirements for all LRUs are not met by the planned date, July 1980. As indicated in Section 5.2, OO-ALC/MMA will implement and supervise the transition. Table 7-3 presents the status as of March 1981 of the transition from LRU to SRU warranty.

At the planned transition time, two USAF bases will have been activated in addition to the four EPG bases. Six LRUs are scheduled for transitioning. It is desirable, although not essential, that they all transition at the same time.

It is the responsibility of OO-ALC/MMA to direct each of the six active sites to report to MMA monthly their projected transition capability. The report should include the status of the six key requirements listed above. OO-ALC/MMA will then make a recommendation to ASD/YPL regarding the transition date. The transition will be implemented by a message to the maintenance management organization at each of the six sites. The message will include the following information:

- Identification of any changes necessary for existing publications and T.O.s
- Date of transition
- Transition instructions pertaining to LRU and module seals and decals
- Permissible maintenance actions*

At the same time, OO-ALC/MMA will direct a message to the AFPRO at GD, who in turn will notify all plant representatives of the date after which SRUs are to be inducted into the contractor's warranty repair line.

*Permissible maintenance actions would include identification of any parts such as lamps, knobs, and fuses that may be replaced in the shop without voiding the warranty. They would also include the occasional need to NRTS LRUs even though the transition to module warranty may have taken place. These NRTS actions may be caused by a lack of spares or technical data or by nonavailability of the AIS.

Table 7-3. STATUS OF TRANSITIONS FROM LRU TO SRU

LRU	Configuration	Transition Status	Remarks
FLCC	-5 and -6 -7	31 July 1980 Projected for April 1981	Depending upon AIS capability
INU	-20 and -21	15 January 1981	
HUD PDU	-11 and -12	14 July 1980	
HUD EU	N/A	N/A	
Radar Computer	"C," "CR," and BLK 10	23 February 1981	LRU returns authorized for failures in EPROM numbers 1, 2, and 3, and Control Unit Board
Radar DSP	All	13 August 1980	LRU has MTBF guarantee
Radar LPRF	All	1 January 1981	
Radar Antenna	All	26 May 1980	
Radar Transmitter	N/A	N/A	

7.5.7 Disposition and Residual Spares

Depending on factors such as actual aircraft deliveries, flying hours, achieved MTBFs, and success in transitioning from LRU to module warranty, there may be intermittent situations during the warranty period in which there are excess spare LRUs/modules. It is also possible that there will be residual excess spares at the end of the warranty period. However, because of the anticipated future requirements for additional F-16s by MFP nation members and third countries, it is unlikely that disposal action will be necessary.

Since there are several unknown factors -- e.g., equipment reliability, future F-16 sales, etc. -- that will have an impact on the actual number of excess spares, any decisions related to this aspect will be delayed pending the availability of additional data. Any spares that are judged to be in excess of the projected needs of the MFP nations will be allocated to each MFP nation in accordance with its share of the spares purchased. The IM will inform ASD/VPL of any disposition actions.

7.5.8 Warranted TACAN Assets

All discussion thus far has addressed the nine warranted LRUs procured under the F-16 RIW program. One additional warranted item, the AN/ARN-118 TACAN, is procured under a separate Air Force contract and installed in F-16 aircraft as GFAC. The TACAN set, manufactured by Rockwell International, Collins Avionics Division, consists of the following four LRUs:

<u>Name</u>	<u>WUC</u>
Receiver/Transmitter	71AAO
Converter	71ABO
Mount	71ACO
Control Panel	71ADO

Under terms of the TACAN contracts (F19628-75-C-0144 for USAF and F19628-76-D-0076 for EPG), the four LRUs listed above are covered by an RIW and, for USAF, an MTBF guarantee. The RIW on the units extends through March 1982 for USAF and December 1980 for EPG. The IM for the TACAN is located at Warner Robins ALC/MMI. Maintenance and supply procedures for processing these units have been in existence since 1976, and no changes in these procedures will be required. However, it should be noted that the TACAN will not be supported under the AICS contract as the other F-16 RIW LRUs are. As a result, the existing standard USAF/FMS maintenance procedures will be followed. At Hill AFB, for example, the maintenance technician in the Component Repair Squadron will verify the failure by using a hot mock-up in accordance with the TACAN T.O. 12R5-2-ARN118-1. Verified failures will be returned to Collins for repair in accordance with reference 2. A repair-and-return concept is used for TACAN warranty for FMS customers, including the EPGs.

7.6 COMMUNICATIONS

The original F-16 RIW contract provided that the contractor be notified of failures in writing or by electronic message (e.g., TWX). It has been determined that for the USAF, RIW assets would be most effectively managed through the use of the standard supply system's AUTODIN network, and for the EPGs, to use standard TELEX or TWX terminals that can interface with the AUTODIN network through a switching center in Camp New Amsterdam. As a result of this determination, the necessary steps were taken to incorporate the AUTODIN network into the F-16 program as the primary communications system. Data Item Description (DID) DI-L-30320A, which was incorporated into the RIW contract, describes the detailed communications procedures required of the prime contractor and subcontractors.

Two classes of data must be communicated among the various F-16 participants: (1) supply and accounting data, and (2) maintenance and utilization data. Supply and accounting data include the transactions necessary to report failures, to requisition replacements, and to maintain stock balance records at various sites. Maintenance and utilization data include

records of maintenance actions, parts usage, flying hours, etc. The primary means of communicating these two classes of data for the F-16 RIW program will be the established AUTODIN system.

7.6.1 AUTODIN System

The AUTODIN network will provide the primary communications link that ties together the various activities required for the F-16 RIW program. The AUTODIN system, as it relates to the F-16 program, is depicted in Figure 7-5. The AUTODIN subscriber terminals, or in some cases the less sophisticated Advance Record System (ARS) terminals, are linked through worldwide AUTODIN switching centers via the Defense Automatic Address System (DAAS). The EPG interface into the system, and hence into the warranty communications process, is through the switching center in Camp Newamsterdam. Marconi will use an intra-company communications system between its two repair facilities.

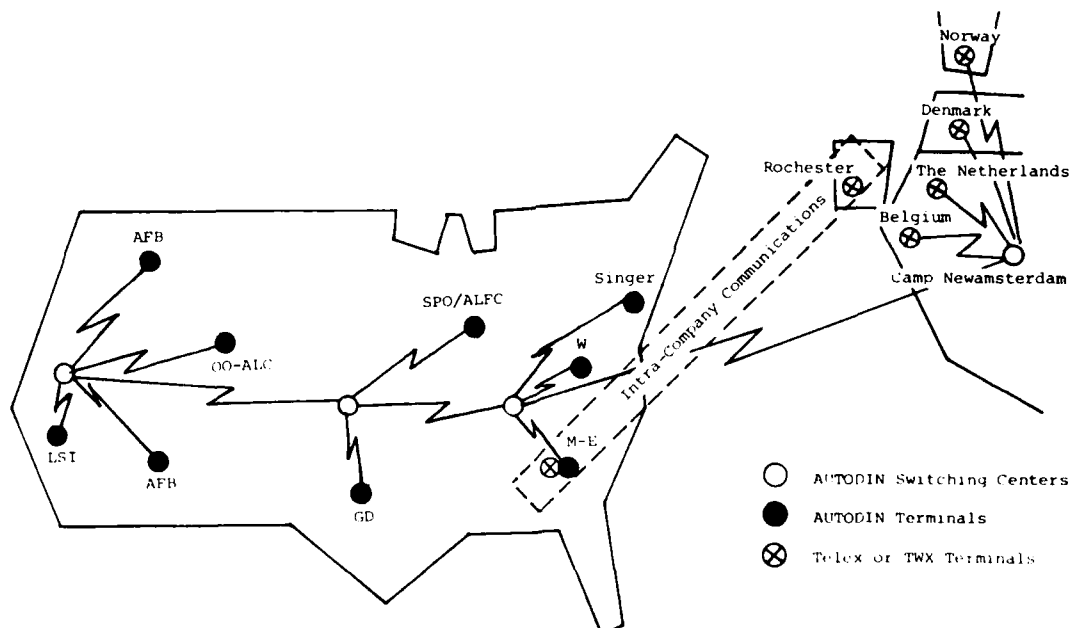


Figure 7-5. COMMUNICATIONS NETWORK AND FACILITIES

7.6.2 AUTODIN/ARS Terminals

The terminals, installed at the subcontractors' facilities and known officially as Advanced Records System (ARS) Terminals, will be provided by AFLC. The terminal at GD is a full AUTODIN facility. AFLC will provide, through GSA, installation of the required equipment, initial operator training, repair, and applicable documents and procedures. The contractor terminals will be manned during normal plant working hours.

7.6.3 Communications Procedures

Detailed contractor communications procedures are specified in DI-L-30320A of the RIW contract. This section briefly describes the communications procedures for the two classes of data required for the F-16 RIW program.

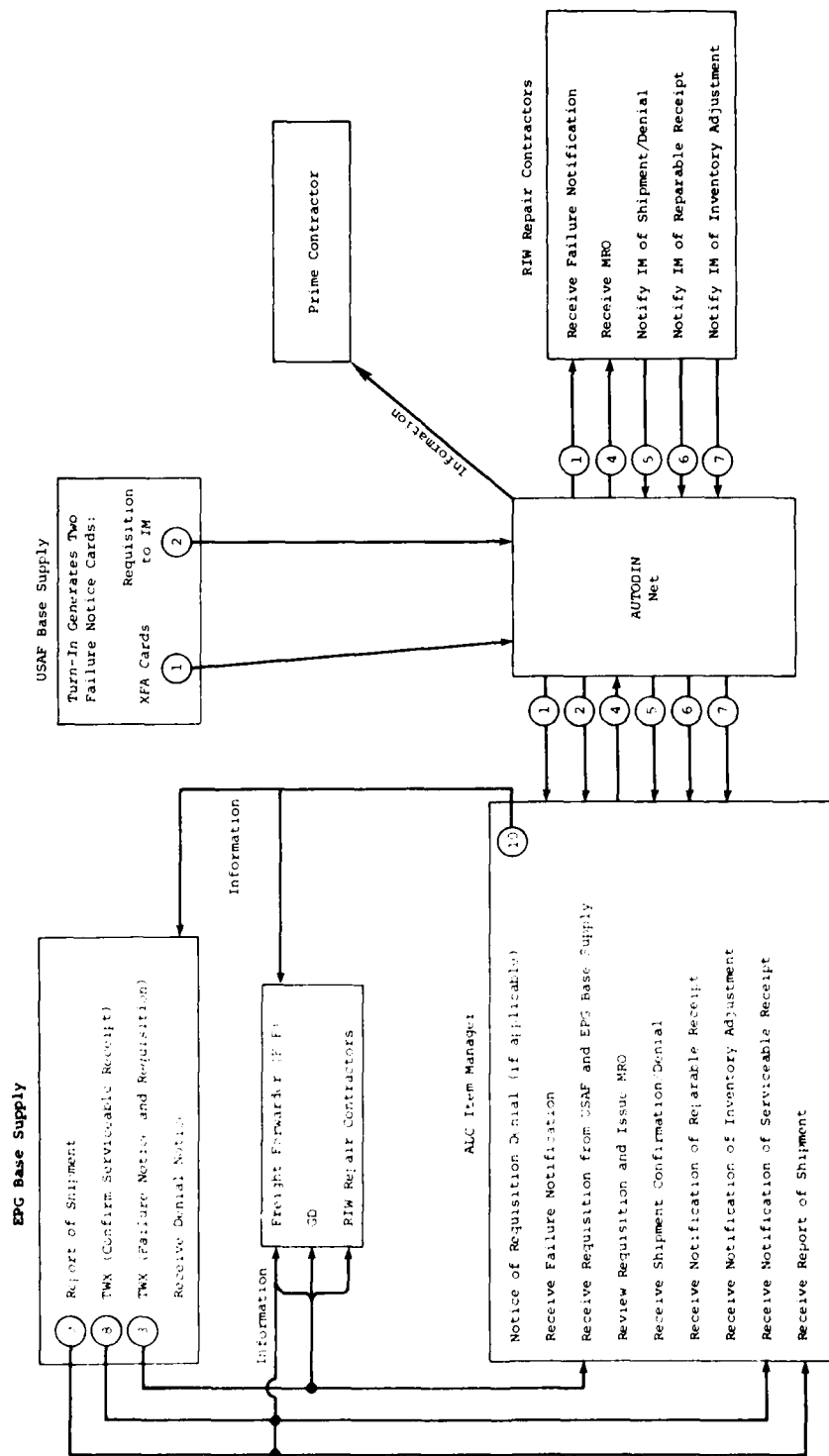
7.6.3.1 Supply and Accounting Data

Figure 7-6 portrays the planned communications for both contractor and government activities. Although there are additional computers in the net -- for example, the ALC 7080 -- they have been omitted in Figure 7-6 to simplify the presentation. When a USAF failed unit is processed through the reparable processing center and is turned in as NRTS to supply, the base computer automatically produces two XFA failure notice cards. Base Supply inputs these cards into the AUTODIN net in accordance with standard procedures. This results in the transmission of a failure/shipment notification to the RIW repair contractor and the Item Manager. The message includes the base identification, NSN, item serial number, etc., and constitutes the failure notification the government is required to provide in accordance with the RIW contract. As shown in Figure 7-6, the prime contractor receives information copies of all subcontractor AUTODIN messages.

In addition to generating the failure/shipment notification, Base Supply also requisitions a replacement unit in accordance with standard procedures. After receipt of the requisition and review of other supply factors such as asset balances at various stockage points, the IM issues either a Material Release Order (MRO) or an appropriate back-order notice through the AUTODIN system to the RIW repair contractor. Following shipment of the unit, the contractor provides the IM shipment confirmation in another message through AUTODIN. If there are no assets in the secure storeroom to ship, the message will be a denial message.

Two additional types of messages are also transmitted by the contractor to the IM. The first type is notification of receipt of a unit; the second type pertains to various inventory adjustments. The inventory adjustment messages include delivery of a repaired (serviceable) unit into the secure storeroom.

As indicated above, detailed procedures, including the MILSTRAP formats for each type of message, are contained in DID DI-L-30320A. This system is already in use for the AN/ARN-118 TACAN (see Subsection 7.5.7) and has been operating since 1976. Therefore, when the total F-16 RIW asset communications system is being considered, the AUTODIN terminal at the Collins Cedar Rapids, Iowa facility should also be included. The one exception is that information copies of messages between the IM and Collins will not be sent to the prime contractor.



Note: The circled number indicates the routing of key transactions through the communications system.

Figure 7-6. P-16 RIW COMMUNICATIONS FOR SUPPLY AND ACCOUNTING DATA

When an EPG failed unit is turned in as NRTS to the local Base Supply, the EPG base will transmit a TELEX or TWX message in the appropriate format shown in Figure 7-7. The message, which serves as both a failure notice and a requisition, is sent to the Item Manager at Ogden, with information copies to the applicable freight forwarder, to General Dynamics, and to the RIW repair contractor, as shown in Figure 7-6.

The EPGs will also transmit a Report of Shipment (REPSHIP) message to the IM and a Confirmation of Serviceable Receipt in accordance with the formats shown in Figure 7-8. The purpose of the REPSHIP message is twofold: it verifies that an RIW reparable has been evacuated from the base and is in transit, and it furnishes other shipping data to allow greater traceability should the asset become lost or delayed. To avoid duplication of some data, the EPGs may combine the Failure Notice TWX with the REPSHIP TWX provided all of the data shown in the two message formats are included in the combined message.

The message provides the necessary information to GD pertaining to the failed unit. It also provides the shipment document number to the repair contractor for traceability purposes, and it alerts the freight forwarder of shipment.

When the Item Manager receives the message, he will record the date of receipt and manually generate a requisition for the EPG and input this requisition into D032. A controlled exception is outputted to the IM, and he processes the requisition in the same manner in which he would process a requisition from a USAF base.

If the IM is unable to generate a requisition for an EPG because of a zero stock balance in the secure storeroom, and if he judges that he will not be able to satisfy the requisition in an acceptable time, he will notify the EPG via a Requisition Denial message, using the format shown in Figure 7-9. If the IM is unable to fill a USAF requisition because of a zero stock balance, the USAF base is automatically notified of its back-order status through AUTODIN.

The date-time group of the EPG TWX is compared with the reparable receipt date as reported by the contractor (via his ARS terminal) to determine the shipment time. The IM maintains records of all shipment times to determine if the transportation time objectives in Table 7-1 are being met.

Upon receipt of the serviceable asset, the EPG Base Supply transmits a second message to the IM that notifies him of the serviceable receipt date (see Figure 7-8). The IM can then compare the date of receipt with the date-time group of the Failure Notice to determine if this segment of the transportation time objectives is being met.

The IM will periodically examine his records of transportation times. If the average of these times is exceeding the objectives, he can quickly locate the source of delays. In addition, he may use such records from each base to adjust the response of serviceable shipments to a base if spares become insufficient to meet demands.

FM:	(EPG Country)
TO:	DIR. MAT. MGT. HILL AFB UT/MMAD
INFO:	(RIW Vendor) GEN DYN CORP Ft. Worth, TX (Country Freight Forwarder)
SUBJ:	F-16 RIW FAILURE NOTICE AND REPLACEMENT REQUISITION
<ol style="list-style-type: none"> 1. ITEM (Noun and NSN), SERIAL NUMBER (10 digits) FAILED AT (Base). UNIT IS BEING RETURNED ON SHIPPING DOCUMENT NUMBER (14 pos. doc. nr.). 2. REQUISITION FOR REPLACEMENT (MILSTRIP Requisition) 3. CURRENT STOCK POSITION ON (NSN) AS FOLLOWS: AUTH (Qty*); SERVICEABLE ON-HAND (Qty*); REPARABLE ON HAND (Qty*). 	
*Quantities in words, not numerals.	

FM:	(EPG Country)
TO:	DIR. MAT. MGT. HILL AFB UT/MMAD
INFO:	(Westinghouse Electric Corp.) GEN DYN CORP Ft. Worth, TX (Country Freight Forwarder)
SUBJ:	F-16 RIW FAILURE NOTICE AND REPLACEMENT REQUISITION FOR LPRF
<ol style="list-style-type: none"> 1. ITEM (Noun and NSN), SERIAL NUMBER (ten digits), FAILED AT (Base). UNIT IS BEING RETURNED ON SHIPPING DOCUMENT NUMBER (14 pos. doc. nr.). 2. REQUISITION FOR PRIMARY REPLACEMENT (MILSTRIP Requisition) 3. SUBSTITUTION PRIORITY IF PRIMARY UNIT IS NOT AVAILABLE: <ol style="list-style-type: none"> a. NSN and part number. b. NSN and part number. c. NSN and part number. 4. CURRENT STOCK POSITION ON PRIMARY UNIT AS FOLLOWS: AUTH (Qty*) SERVICEABLE ON-HAND (Qty*); REPARABLE ON HAND (Qty*). 	
*Quantities in words, not numbers.	

Figure 7-7. MESSAGE FORMATS FOR EPG USE IN REQUISITIONING SERVICEABLE RIW ASSETS

FM: (EPG Country)
 TO: DIR. MAT. MGT. HILL AFB UT/MMAD
 INFO: (Country Freight Forwarder)
 SUBJ: REPORT OF RIW REPARABLE SHIPMENT
 RIW: SHIPPING DOCUMENT NUMBER (14 pos. doc. nr.)
 ITEM (Noun and NSN), SERIAL NUMBER (10 digits)
 SHIPPED (Julian date) ON BILL OF LADING (number) VIA
 (carrier and routing)

FM: (EPG Country)
 TO: DIR. MAT. MGT., HILL AFB UT/MMAD
 INFO: (Country F/F)
 SUBJ: CONFIRMATION OF RIW SERVICEABLE RECEIPT
 REF: (Date-Time Group of RIW Failure Notice and Replacement
 Requisition Message)
 ITEM (Noun and NSN), RECEIVED AT (Base) ON (Julian
 date). SHIPPING DOCUMENT NUMBER (14 pos. doc. nr.).

Figure 7-8. MESSAGE FORMATS FOR USE IN REPORTING SHIPMENT OF A
 REPARABLE RIW ITEM AND CONFIRMING SERVICEABLE RECEIPTS

FM: DIR. MAT. MGT. HILL AFB UT/MMAD
 TO: (EPG Country)
 INFO: (Country Freight Forwarder)
 SUBJ: REQUISITION DENIAL
 REF: A. YOUR MSG (Date-Time of RIW Failure Notification
 Message)
 B. SHIPPING DOCUMENT NUMBER (14 pos. doc. nr.) UNABLE TO
 SHIP REPLACEMENT FOR REF. FAILURE. EST. RELEASE DATE
 IS (Julian date).

Figure 7-9. MESSAGE FORMAT FOR USE IN NOTIFYING AN EPG BASE OF A
 REQUISITION DENIAL

7.6.3.2 Maintenance and Utilization Data

Standard procedures apply for handling USAF maintenance and utilization data. Maintenance data enter the AFLC D056 system directly from such forms as the AFTO 349, and flying-hour data enter G033 via the operating commands.

Each EPG records maintenance and utilization data on its established forms and in an established format. These data are transmitted, via the EPG Telex or TWX terminal, to the B-3500 computer in Camp Newamsterdam through a front-end processor (FEP). The FEP converts each country's format into a standard format for processing by the B-3500. The re-formatted data are retransmitted, via AUTODIN, into the AFLC D056 system. The EPG data are identified by country, base, aircraft, etc., so that separate maintenance and usage analyses may be made for any base in the MFP nations.

On a monthly basis, appropriate G033 (flying hour) data will be furnished to the RIW Program Manager at General Dynamics in accordance with the requirements of the 0062 RIW contract. This is an automatic process that results from a GD requisition for such data.

7.7 AFPRO/DCAS RESPONSIBILITIES

The administration of the RIW contract at the subcontractor's repair facilities will require some out-of-the-ordinary monitoring, record-keeping, decision-making, and reporting. This section addresses the specific responsibilities of the government agents from local AFPRO and DCASMA organizations who will be needed to support the RIW program.

Each AFPRO/DCAS office is expected to establish its own internal procedures with the contractor, as long as the procedures satisfy their responsibilities in administering the RIW contract.

There are five repair facilities for RIW items. The facilities are collocated with the secure storage sites previously shown in Figure 7-4 and further defined in Subsection 7.5.4. The Marconi-Elliott facility in Rochester, Kent, England, will be the repair site for all HUD and HUD EUs that fail in EPG and USAFE aircraft. The Atlanta facility will serve all USAF CONUS failures of these LRUs. Except for the Westinghouse facility, where an AFPRO office will provide contract administration, all the other manufacturers' plants will utilize local DCASMA representatives. The Marconi-Elliott plant in Rochester, England, is serviced by Detachment 17, AFCMO/RAD, Coughton, England, through AFLC/PPMP.

7.7.1 Delegation of AFPRO/DCAS Responsibilities

A letter of delegation prepared by the prime AFPRO at GD and concurred in by the F-16 SPO, has been issued to each of the AFPRO/DCAS agencies that will need to be involved in the RIW program. The delegation constitutes

both authority and general direction for the government agents. This Implementation and Management Plan describes in greater detail the support required from the government agents for the RIW program.

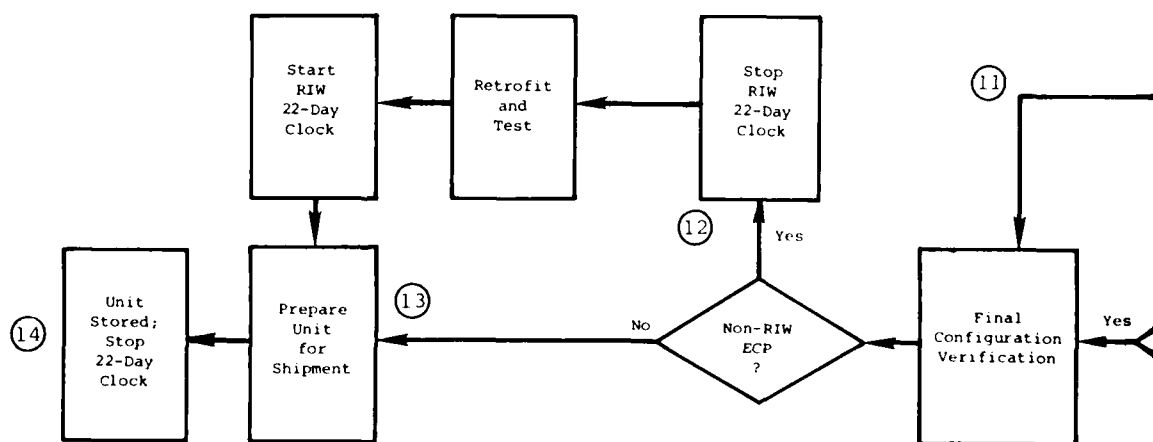
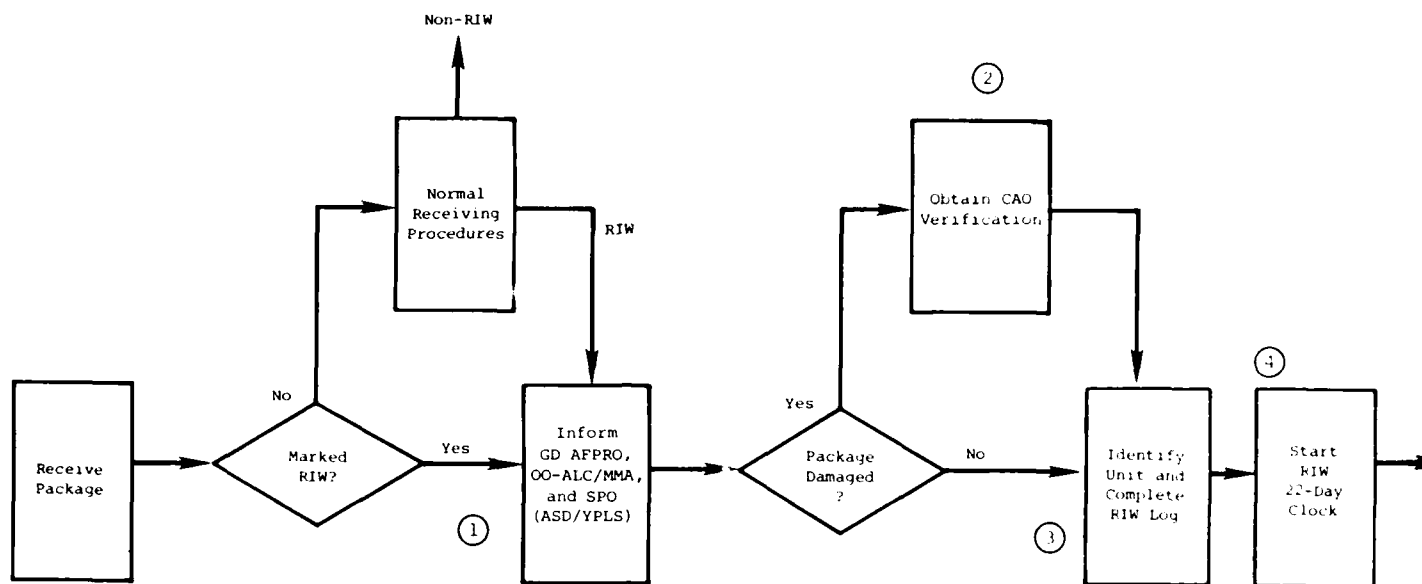
7.7.2 General Repair Process

A general repair-process flow diagram is presented in Figure 7-10. It is considered a general process because each of the RIW equipment manufacturers will have its own internal repair process that best suits its equipment and repair procedures. In addition, some manufacturers may not initially have a separate repair line, but instead will perform repairs in the production line. Figure 7-10 highlights the interface of the government AFPRO and DCAS representative in the RIW repair process. The following subsections describe the activities expected of the government agent.

7.7.3 Specific Responsibilities During the Repair Process

Certain actions that Contract Administration Office (CAO) representatives will be required to perform during the repair of warranted items are described below. All actions are to be performed by subcontractor CAO representatives (hereinafter referred to as "agents" or "representatives") unless specified otherwise. The following numbers refer to the appropriate time for the actions and correspond to the numbers in Figure 7-10:

- ① The CAO agent will monitor RIW receipt logs. All incoming packages containing warranted items are to be clearly marked with the words "M/F F-16 RIW" on the address label. The agent will verify and keep records of improperly marked packages. The agent will, in turn, notify the GD AFPRO, 00-ALC/MMA, and the SPO (ASD/YPLS) of deficiency.
- ② The CAO agent will verify damaged package upon receipt of damage notification from the contractor. The agent will also verify any physical damage to package contents, including seal tampering or breakage. Agent will maintain records, including photographs of damage, source of shipment, and any other data he considers pertinent.
- ③ The CAO agent will monitor incoming documentation, processing, and handling and opening of properly marked, undamaged RIW packages.
- ④ Each CAO will assure that its subcontractor starts the 22-day clock on the same day the receipt log is completed. This should normally be the same day the item is received. The clock starts even if the item is a potential exclusion unless the CAO concurs that (1) the item is a probable exclusion and (2) repair costs are likely to exceed 75 percent of the item's replacement value. In such cases, the CAO is authorized to delay clock start pending direction from the Fort Worth ACO. For potential exclusions not meeting both of the foregoing criteria, the repair authorizations issued by the Fort Worth ACO will also authorize General Dynamics and its subcontractors to omit the repair turnaround time from the semiannual turnaround computations.



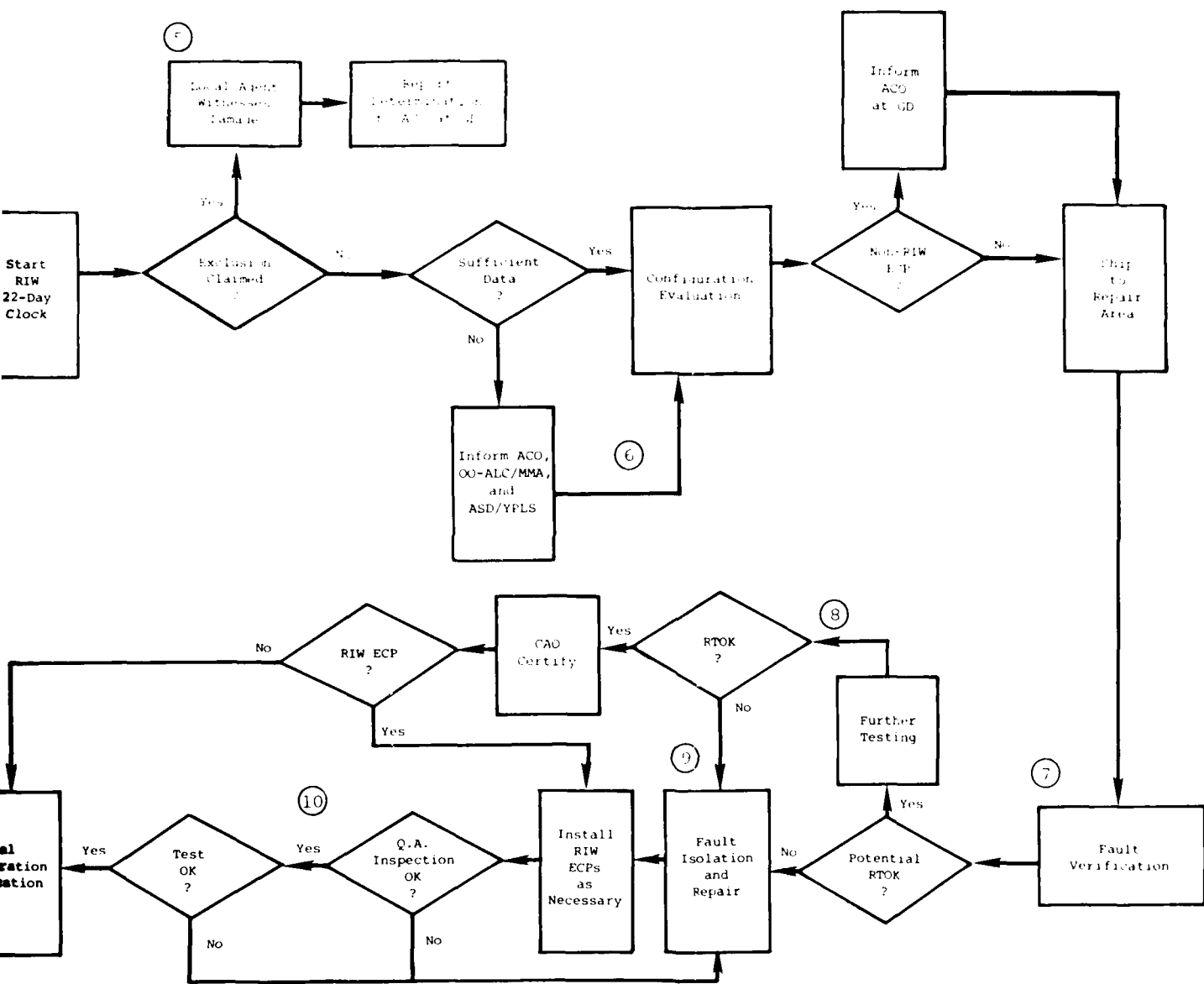


Figure 7-10. F-16 RIW REPAIR PROCEDURES

- ⑤ Each subcontractor will notify its CAO of each potential RIW exclusion. The CAO agent will (1) witness the damage, (2) gather evidence to substantiate or refute the claim, (3) forward facts and recommendations to the Fort Worth ACO within one workday, and (4) provide documentation requested by the Fort Worth ACO. Information should be provided to the Fort Worth ACO by telephone when possible. Experience shows most exclusions can be handled orally. The Fort Worth ACO's telephone number is (817) 732-4811, extension 5751 (AUTOVON 838-5751).
- ⑥ The governments of the USAF and EPGs have agreed to supply failure data to the contractors when practical. Accordingly, AFTO 350 form (or equivalent for the EPGs) should accompany the warranted repairable. The CAO agent will confirm claims of missing or inaccurate field data. He will notify, in turn, the ACO, OO-ALC/MMA, and ASD/YPLS. Prior to 31 December 1980, he will also notify GD through the prime AFPRO because the GD AICS field team is required to complete the necessary AFTO forms. In no case will insufficient failure data be a cause to stop the 22-day repair-time clock. The government will also confirm the adequacy of data entered on the Installation/Removal placard on the two MTBF guarantee units (see Subsection 7.3.2). If the install or remove dates are not entered or are obviously incorrect, the CAO agent will notify the RIW Program Manager. No estimates of such missing or incorrect data will be used in the subsequent MTBF calculations for the units. The failure of the unit, however, will be counted in those MTBF calculations.
- ⑦ The CAO agent will monitor fault-verification procedures.
- ⑧ The CAO agent will monitor all "Retest OK" conditions. In addition, he will verify full documentation of "Retest OK" conditions for the Radar Transmitter and the HED Electronics Unit. If any LRU or module fails to pass fault-verification test, it cannot be classified as a "Retest OK" regardless of whether or not the fault-verification indication matches the failure description.
- ⑨ The CAO agent will monitor fault isolation, repair, and RIW ECP installation as he deems necessary.
- ⑩ The CAO agent will monitor quality procedures and methods as he deems necessary to ensure the quality of workmanship.
- ⑪ The CAO agent will monitor the contractor's procedures for assuring that the RIW item is in the latest approved RIW configuration.
- ⑫ The CAO agent will monitor non-RIW ECP update actions and any necessary testing. He will authorize stopping and restarting the 22-day repair-time clock for such non-RIW ECPs. Non-RIW ECPs may be installed during the RIW repair process or during RIW ECP installation if convenient and if so authorized in the approval of the non-RIW ECPs.
- ⑬ The CAO agent will monitor packing, marking, and transfer of items to the secure storage area.

- ⑭ The CAO agent will monitor the contractor's selection of items for shipment from the secure storage area to assure that he complies with the procedures described in Subsection 7.5.4. He will verify that shipments are made within the allowed time from receipt of the Material Release Order from the Item Manager (see Section 4.7).

7.7.4 Starting and Stopping the 22-Day Clock

A CAO agent will verify the clock start date as the date the item was logged in; normally the date it was received. Should delays over which the contractor has no control be incurred during the repair process the agent will monitor clock adjustments. The agent will monitor the subcontractor's data recording and processing to determine compliance with the contract requirement for completing all RIW repairs within an average of 22 days over 6-month periods.

7.7.5 "Retest OK" Returns

As indicated in Figure 7-10, the CAO representatives will monitor all RTOKs for the purpose of identifying possible problems, such as consecutive RTOKs on the same serial-numbered item with little or no accumulation of operating time. In addition, all RTOKs on the Radar Transmitter and HUD Electronics Unit must be confirmed by the CAO representatives. If no RIW modifications are required, the RTOK units will be placed in the secure storeroom with CAO surveillance in the same manner as for normal RIW returns. If RIW modifications are required, the contractor will update the units to the current RIW configuration, with CAO surveillance as for the normal RIW returns.

7.7.6 Excluded Items

Section 4.6 listed circumstances under which units will be excluded from warranty repair. As indicated in Figure 7-10, any exclusion damage claimed by the subcontractor must be witnessed by a CAO representative. See Section 7.7.3, Item c, for required actions. The Fort Worth ACC will direct repair and disposition of items that qualify as exclusions.

The repair clock starts for all items, including potential exclusions, when the repair begins. The repair authorization for an exclusion validated by the Fort Worth ACC will authorize General Dynamics and its subcontractor to omit the repair time for that item from the 6-month turnaround computation. Exception: A CAO representative is authorized to delay clock start when he concurs that (1) the item is a probable exclusion and (2) costs to repair the item are likely to exceed 75 percent of the value of a replacement. Excluded items will be repaired (or processed) in accordance with the provisions of contract D42000-70-G-7529 between GD-ALL and General Dynamics (see Section 6.1). They will also be retrofitted to the latest RIW configuration in the same manner as RTOK items discussed in Section 7.7.3 above.

7.7.7 Repair of Nonwarranted RIW-Type Items

Nonwarranted failed items will be returned to the contractor and inducted into the repair cycle for two reasons during the warranty period: (1) failure of nonwarranted associated spares and (2) failure of nonwarranted ship sets (delivered to USAF in June of 1981 and to EPGs in June 1982).^{*} The contractor is required to repair the RIW items within an average of 22 days and the non-RIW items within the time specified in the applicable repair contract for such items. Nonwarranted RIW-like items returned to the contractor for repair are to be retrofitted to the latest approved RIW configurations. The agent will be responsible for ensuring that the contractor does not give repair priority to nonwarranted items if such priority is causing him to fail to meet his 22-day repair-time obligations under the RIW contract. In addition, nonwarranted items will not be processed through RIW float stock. He will also assure that any component (e.g., a module) that is taken from the contractor's production stock or RIW float stock and used to replace a failed warranted component is also warranted and contains the necessary RIW labels, decals, and seals to so indicate.

7.7.8 Custody-Transfer Requirements

There is no requirement for transfer of custody of RIW items being returned to the contractor for repair or being returned to the government after repair. Incoming reparables are accepted on a DD-1348 form, and serviceables are moved from the secure storage area on a form DD-1149 or 1348-1. Repair process documentation, such as a repair follower tag or other records of the repair, is sufficient to move the serviceable to the secure storage area. These transfer requirements apply to all repairs performed under the 0062 contract. Transfer requirements for repair of exclusions or nonwarranted items are as specified in the contract under which the repair is performed.

7.8 CONFIGURATION MANAGEMENT

This section describes the responsibilities and procedures to be followed in performing configuration management actions contained in Contract F33657-77-C-0062. While this contract affects configuration management as a result of RIW, the contractor's primary configuration management responsibilities are in accordance with document 16PP153 dated 16 December 1974 and all amendments, as utilized in the performance of the production contract, F33657-75-C-0310. Configuration management, as addressed herein, will deal only with the unique RIW requirements of the 0062 contract, not the standard configuration management responsibilities of the 0310 contract.

^{*}This paragraph does not apply to other RIW-like LRUs used for training, etc. These equipments will be repaired under repair-and-return procedures.

7.8.1 Program Management Responsibility Transfer (PMRT)

Until PMRT, the Directorate of Configuration Management, ASD/YPC, is responsible for all matters related to configuration management of the nine RIW/LRUs. Responsibility for program management of RIW items will transfer from ASD to OO-ALC on an item-by-item basis as soon as each item's transfer criteria, as defined in the F-16 PMRT plan, are met. Final transfer of items is not scheduled to take place until the end of the RIW program.

7.8.2 Identification of Warranted Items

In addition to the standard identification plate, the RIW items will be identified by warranty labels or markings that clearly indicate that the items are covered under warranty. Planned warranty marking, discussed in Section 4.6, are described further in the GD report "F-16 Reliability Improvement Warranty, Preliminary Data Collection, Analysis, and Reporting Plan", dated 19 August 1977.

7.8.3 ECP Processing

Under the RIW contract, the contractor is encouraged to submit ECPs to improve reliability or maintainability. Such ECPs will be clearly designated RIW ECPs and will be submitted in accordance with the provisions of the 0310 contract (MIL-STD-480). However, 0310 contract provision J.60, which pertains to ECP preparation payment, and provision J.66, which pertains to priced exhibits to ECPs, shall not apply. All RIW ECPs are at no additional cost to the government, whether subsequently approved or disapproved.

In recognition of the high contractor motivation for total cost control effected through warranty, the government has agreed that all no-cost RIW ECPs submitted by the contractor will receive expeditious processing. As a result, the 0062 contract provides that 35 days after an RIW ECP has been submitted to the PCO, it will be considered to have been incorporated into the contract unless the contractor has received written notification of its disapproval prior to that date. Thus, while RIW ECPs will be processed in basically the same manner as non-RIW ECPs, it will be necessary for ASD/YPC to establish special control procedures to ensure timely approval or disapproval.

The prime contractor will receive proposed RIW ECPs from the subcontractors and, after an approximately 30-day review cycle, determine whether to recommend approval of the ECP and submit it to the Air Force for approval. As part of ECP evaluation it will be necessary for the prime contractor to determine the impact, if any, that the ECP will have on the aircraft, AIS equipment, or software. This impact analysis will be included in any ECPs forwarded. To assist in timely evaluation of RIW ECPs, information copies of subcontractor-proposed ECPs, if available, will be forwarded to the PCO via the ACO prime contract at the same time they are submitted to the prime contractor. Distribution will then be made to the

required government activities. Such ECPs will be clearly marked to indicate that they are advance information only and may or may not be subsequently forwarded by the prime contractor for approval. The applicable AFPRO/DCAS office will ensure that the advance copy is forwarded to the PCO. This advance information will permit ASD/YPC to begin an analysis of the nontechnical aspects of the ECP and be in a position to expedite approval or disapproval if ECPs are subsequently received from the prime contractor.

7.8.4 Change Control Board (CCB) Procedures

The CCB is the agency in the SPO responsible for reviewing and approving or disapproving ECPs on the warranted LRUs. Several types of ECPs may be expected. They are described below, together with the appropriate CCB evaluation criteria.

- RIW No-Cost ECPs. If an RIW no-cost ECP is received for the CCB action, the board should assess the recurring production cost impact after the warranty expires, assure that the ECP will not compromise in-flight safety, and review any other considerations that might be adversely affected by the ECP. If these assessments are favorable, the ECP should be approved.
- Cost-Type ECPs. If a cost-type ECP (e.g., COD) is received for any of the warranted equipment (LRUs or modules), the CCB should employ the evaluation process shown in Figure 7-11. (Note: Even though the qualification testing for the radar has not been satisfactorily completed, the CCB should evaluate all radar cost-type ECPs in the same manner as for other LRUs.)
- Mixed ECPs. Mixed ECPs may improve performance of the warranted equipment as well as reduce the number of returns or the contractor's repair costs. If the performance improvement and the R/M improvements result from two or more distinct design changes, and if the R/M improvements appear to be substantial, General Dynamics should be requested to submit separate ECPs. If either of the above conditions does not exist, the ECP will be treated as a cost type of ECP.
- SPO-Directed ECPs. If an ECP for the warranted equipment results from an ACSN or other SPO initiative, the ECP must clearly identify any cost impact the ECP will have on the RIW contract price. The evaluation of the ECP can then include consideration of this cost impact.

7.8.5 Configuration Control

The contractor will maintain configuration control by serial number. All changes to configuration, design, part, technical orders, or support equipment that affect form, fit, or function will be submitted to the contracting officer for approval. Changes not affecting form, fit, or function will be documented, accomplished, and reported to the government in a timely manner. As RIW items are returned to the contractor for repair,

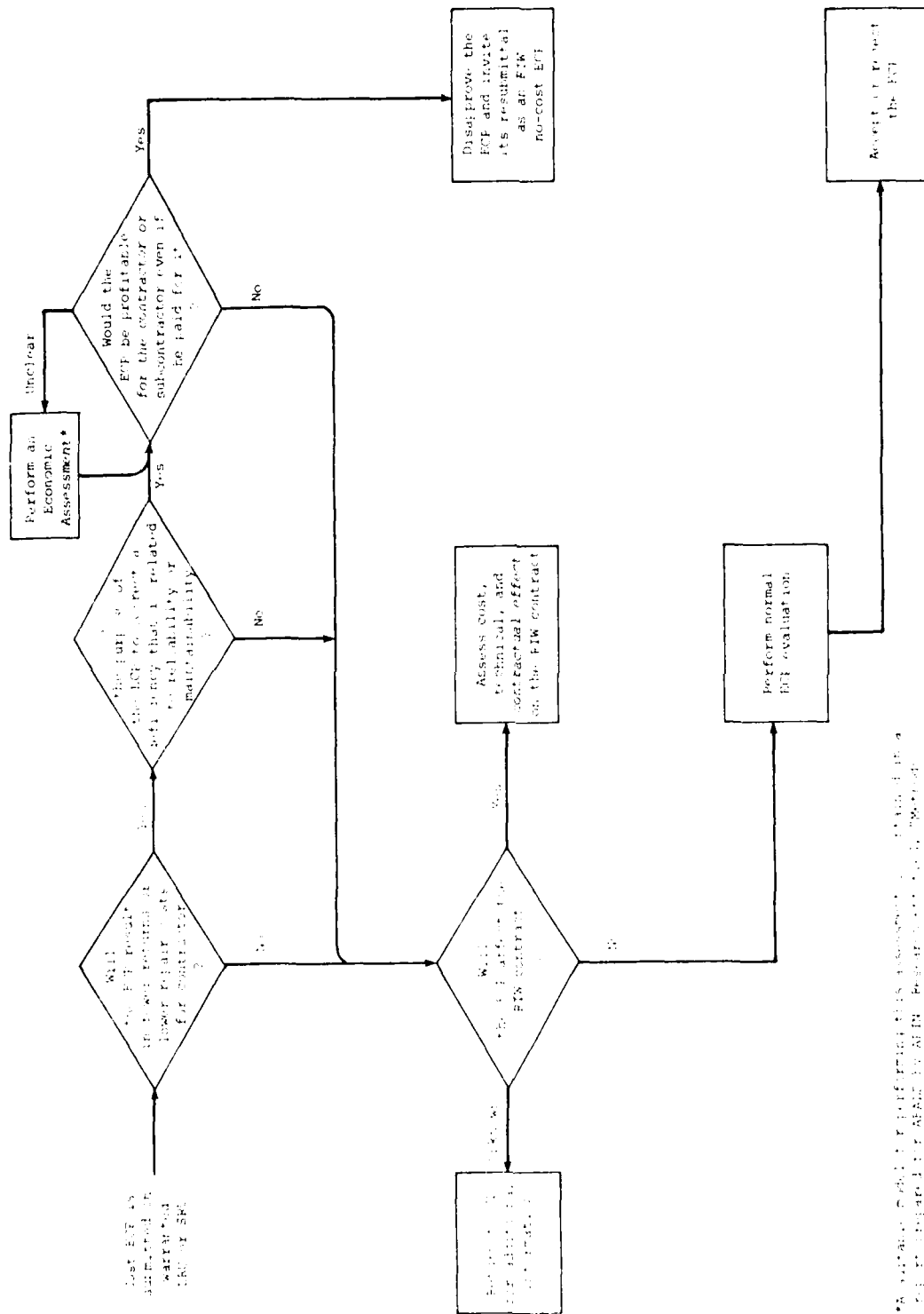


Figure 7-11. EVALUATION PROCESS FOR COST-TYPE ECFs ON WARRANTED EQUIPMENT

they will be brought up to the latest approved RIW configuration unless otherwise specified by the ECP. It is intended that at the end of the warranty period all items, T.O.s, and associated support equipment will be in the latest approved RIW configuration. Those items in the inventory at the end of the warranty period not in the latest RIW configuration will be modified by the government, using kits and information necessary for the modification supplied by the contractor under the RIW provisions. The kits and information will be supplied by the contractor as part of the RIW provisions and at no change in the fixed-price warranty. Each MFP member nation will be responsible for accomplishing the TCTOs on its individual assets.

7.8.6 Configuration Management Data

As part of each semiannual Warranty Data Report, the contractor will provide a Modification Status Summary. This report will include a record, by serial number, of the modification status of each RIW item and a summary of the modifications recommended and incorporated by the contractor for reliability improvement.

7.8.7 Technical Order (T.O.) Verification

7.8.7.1 Flight-Line T.O.s

Two verification efforts are required to cover pre-RIW (FSD) and RIW periods. The first verification effort will be accomplished by the Joint Test Force (JTF) at Edwards AFB during FSD. Preliminary T.O.s will be updated during FSD and finalized at FSD termination. During RIW, any T.O. changes required will be verified by ASD/YPA until PMRT. A final verification review will be accomplished at the end of RIW to complete any residual verification tasks.

7.8.7.2 Intermediate-Level T.O.s

Two verification efforts are required to cover the AICS and post-AICS periods of RIW. The first verification effort will be accomplished by TAC personnel while the AICS field team is still present. T.O. procedures pertaining to LRU and module testing are to be verified prior to RIW transition to module-level coverage. A final verification review will be performed by OO-ALC. T.O. changes will be verified as they occur. A final verification review will be accomplished by OO-ALC at the end of RIW to complete any residual verification tasks.

7.8.7.3 Depot-Level T.O.s

Verification of depot-level technical orders for RIW items depends on development and delivery of peculiar depot support equipment and T.O.s as specified in the F-16 Depot Support Plan. This verification must occur prior to RIW termination.

7.8.8 Time Compliance Technical Orders (TCTOs)

At the end of the contract, proven kits will be provided to update the RIW items to the post-PCA configuration. The individual MFP governments will accomplish the TCTOs.

7.8.9 Material Deficiency Reporting System (MDRS)

Deficiency reports (DRs) will be submitted and managed in accordance with T.O. 00-35D-54. Field activities will follow the normal AFM 66-1 F-16 Multinational Data Collection System (MNDCS) and MDRS process. The MDR board chairman will be an ASD/YPE representative prior to PMRT and an OO-ALC/MMAR representative following PMRT. Data distribution on the corrective action taken as a result of any action (government, GD, or supplier) will be in accordance with the 0062 contract.

7.9 FUNDING

There are four principal funding categories associated with administration of the F-16 RIW program: (1) RIW funds under the 0062 contract, (2) funds for transportation and handling, (3) funds for repair of RIW items qualifying under the exclusion clause of the RIW contract, and (4) funds for repair of non-RIW items.

7.9.1 Contract 0062 Funding

Funds for the 0062 contract are provided by the participating countries as described in the applicable Letters of Agreements.

7.9.2 Transportation and Packaging

Transportation and packaging funds are provided by each MFP nation on an as-used basis. The EPG members of the MFP have established their own transportation system and will individually fund their use of freight forwarders. Shipment from the contractors to USAF bases will use the standard Government Bill of Lading (GBL). Shipments to the EPGs will use collect commercial bills of lading.

7.9.3 RIW Exclusions

Repair of RIW items that qualify for an exclusion will be accomplished through GD under a separate contract. Funds for these repairs will be provided by the individual MFP members on the basis of the negotiated repair costs for exclusion repairs. The repair of exclusions will be paid for on an individual basis by the responsible country.

7.9.4 Non-RIW Repairs

During the Warranty period there will be "RIW-like" items (LRUs and modules) in the inventory that are not warranted. These nonwarranted items

are introduced with the delivery of the 251st USAF and 193rd EPG aircraft deliveries. They may also be introduced earlier in the program if all spares are not covered under the warranty. Since all the "RIW-like" pipeline assets (both warranted and nonwarranted) are to be commingled and issued on a first-in, first-out basis, the MFP nations may receive either a warranted or a nonwarranted asset. The EPG countries may also receive a nonwarranted spare before they receive their first nonwarranted aircraft ship set. The EPG Senior National Representatives (SNRs) and the F-16 RIW Program Manager have agreed in concept to share the repair costs on the basis of each country's flying hours (see Appendix F). This will assure equitable sharing of these costs. The repairs will be performed under the contracts between 00-ALC and the four RIW equipment manufacturers (see Appendix F). This will assure equitable sharing of these costs. The repairs will be performed under the contracts between 00-ALC and the four RIW equipment manufacturers (see Subsection 7.9.3). The cost-sharing formula will be developed by ASD/YPL and coordinated with the appropriate EPG and USAF officials the required lead time between entry into the inventory of the first nonwarranted spare or ship set asset. (The earliest possible date for such event is early 1980.)

7.10 WARRANTY DATA REPORTING

Subsection 7.3.8 addressed the maintenance related data that the MFP governments will provide to the equipment manufacturers. This section is a discussion of the contractually required warranty data reports. The prime contractor will provide semiannual warranty data reports covering warranty experience over a six-month reporting period in accordance with Data Item UL-84-MM/M of Contract 0062. However, the first such report will cover all experience up to the initial anniversary date, which is defined as one year after the government's final acceptance of the first production aircraft.

7.10.1 Contractor Data and Reporting Requirements

The contractor is required to develop and maintain a data accumulation, processing, analysis, and reporting system capable of providing the data items necessary for implementing any of the provisions of the warranty, and capable of providing to the government data and information on the reliability of the warranted LRU or module. All data required will be available to the government at the contractor's plant upon request during the warranty period and for one year thereafter.

The contractor is also required to establish and maintain records of each item returned, consisting of the following data elements:

- Date received by contractor
- Serial number (if applicable)
- Elapsed-Time Indicator (ETI) reading (if applicable)
- Condition of unit based on initial inspection

- Failure mode
- Probable failure cause
- Action taken for repair
- Man-hours expended by labor category
- Parts and material usage
- Test results
- Data stored in secure storage area

The reports will be provided to the PCO in two parts. Parts I and II are provided within 5 and 30 days, respectively, of the end of the reporting period. An MTBF Data Report is also required within 45 days of the end of the reporting period. The contractor will make distribution.

Part I will contain the following information:

- LRU Initial Delivery. A record, by serial number, of each unit, showing ETI reading, date of shipment, and shipping destination.
- Secure Storage Area Population. A listing of the number of each type of LRU and module in the secure storage area at the end of each month in the reporting period.

Part II will contain, as a minimum, the following:

- Corrective Action Summary. A record, by serial number, of corrective actions on units, showing originating field activity (if available), ETI reading, date of receipt, contractor corrective action, warranty-coverage applicability, man-hours expended by labor category, parts and material costs, and date of repair completion.
- LRU or Module Cycle Time. To the extent practicable, a summary and analysis of the number of days for the major elements of the maintenance cycle as follows:

Contractor receipt
to
Storage in secure storage area
to
Shipment to government activity
to
Installation in aircraft
to
Removal from aircraft
to
Shipment to contractor
to
Receipt by contractor

- LRU or Module Reliability. Analysis of causes, modes, trends, and patterns of field failure and action taken, recommended, or projected for corrective action.
- Modification Status Summary. A summary of modifications recommended and incorporated by the contractor for reliability improvements, including changes not affecting form, fit, or function, and a record by serial number of the modification status of each delivered LRU or module.
- Warranty Population. A monthly summary of the number of LRUs and modules of each type known to be in the government inventory and warranty. Information concerning lost items or items declared nonreparable should be summarized.
- Turnaround-Time Statistics. A record of measurements and calculations necessary for implementing the provisions pertaining to the turnaround-time requirement.
- Other pertinent data, facts, information, and investigations that the contractor, at his discretion, believes will be of value to the government in implementing and expanding the RIW concepts.

7.10.2 MTBF Data Report

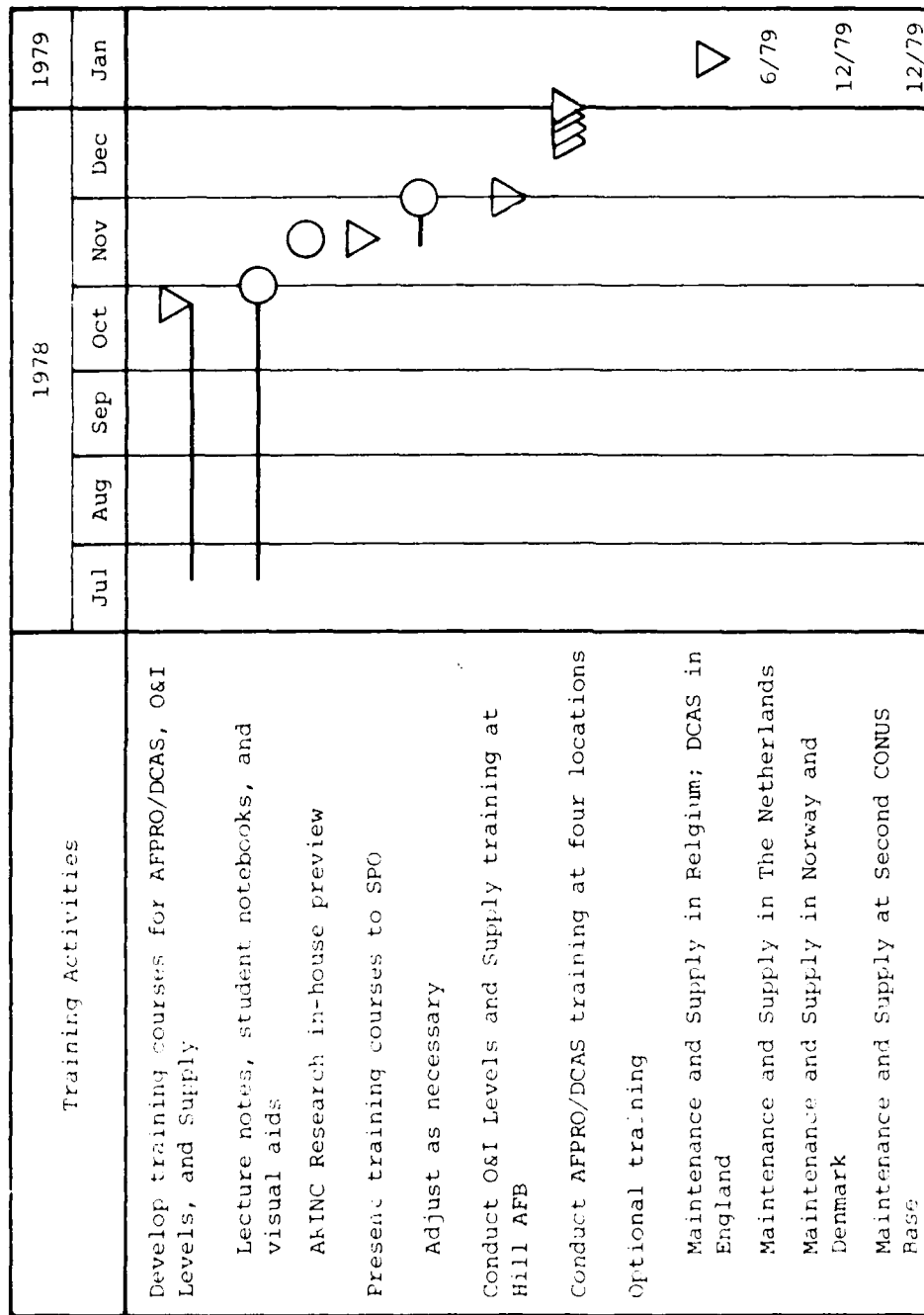
For those LRUs under an RIW with guaranteed MTBF, an MTBF data report will be delivered to the PCO within 45 days of the end of the reporting period. The report will contain all information necessary for implementing the provisions of the MTBF Guarantee clause and will include, as a minimum:

- Achieved MTBF, computed in accordance with the provisions of the contract
- Consignment spares analysis -- the contractor's maximum consignment spares liability for failure to achieve the guaranteed MTBF, and the number of consignment spares previously lent to the government which must be returned to the contractor
- Elapsed operating hours -- the total elapsed operating hours (by LRU type) of all units returned during the measurement period
- Total installed days -- total installed days of all units returned during the measurement period
- The number of single/two-place aircraft that contain an installed unit on the last day of the six months in the reporting period
- The number of days in the measurement period

SECTION 8

SPECIAL TRAINING FOR RIW IMPLEMENTATION

Because of some of the unusual and critical activities that must be performed by Air Force personnel in implementing and managing the RIW program, a special training program has been developed by ARINC Research Corporation and will be presented in accordance with the schedule shown in Figure 8-1. Three courses have been prepared -- one for Organizational and Intermediate maintenance personnel, one for supply personnel, and one for the AFPRO/DCAS agents who will monitor the contractors' performance of the RIW contracts.



Legend: ▽ = Completion dates
 ○ = Interim milestones

Figure 8-1. TRAINING SCHEDULE

SECTION 9

SCHEDULE OF KEY EVENTS

Figure 9-1 shows some of the key events in the F-16 aircraft program that are pertinent to the RIW program. The IMP identifies impacts on the RIW program of delays of some of these events.

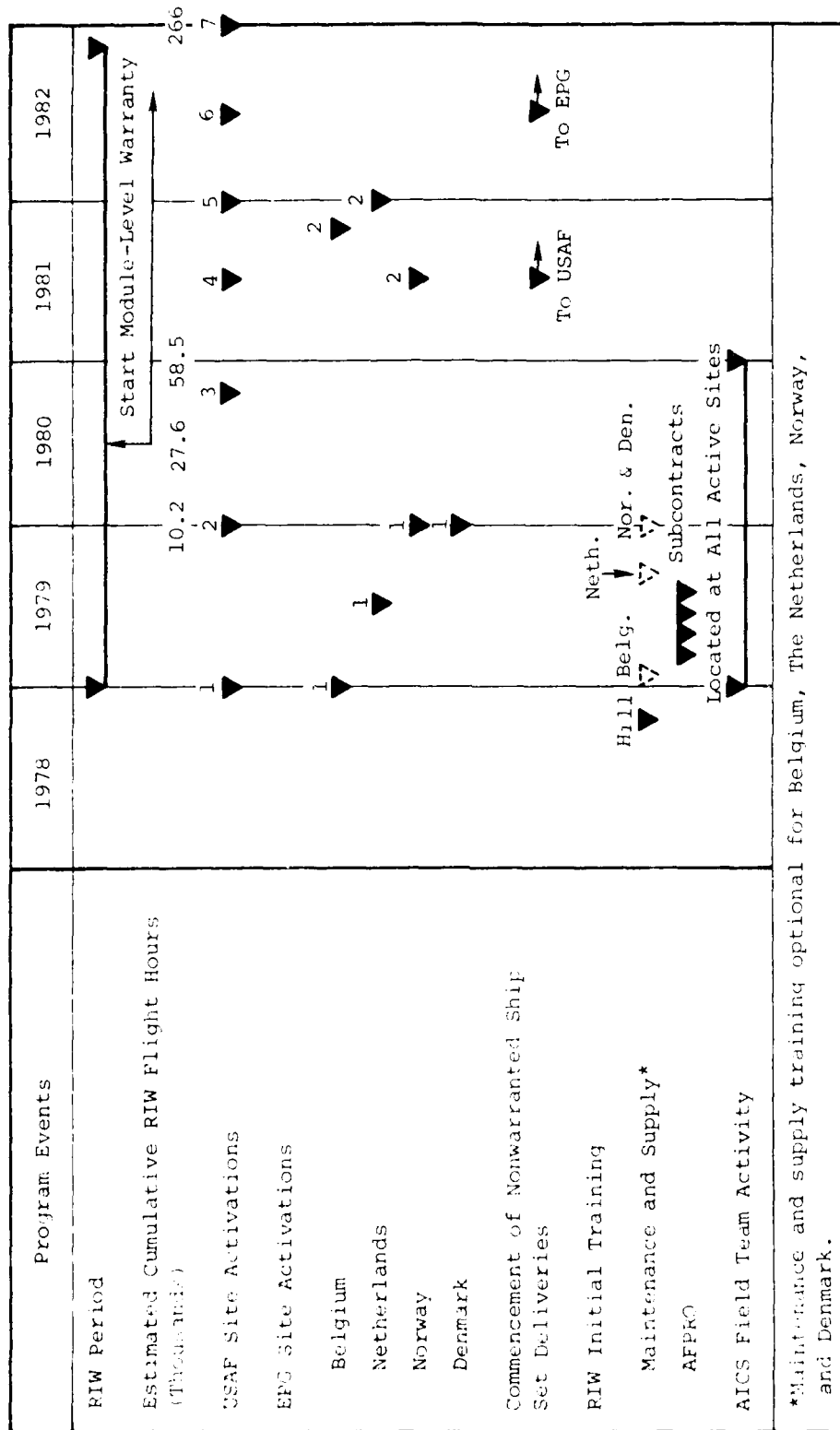


Figure 9-1. F-16 PROGRAM EVENTS KEY TO RIW

APPENDIX A

SPARES COVERED UNDER THE RIW

Table A-1 lists all LRUs and SRUs covered under the RIW.

Table A-1. SPARES COVERED UNDER THE RIW

LRU WUC	SRU WUC	Nomenclature	Quantity
14AA0		Flight Control Computer	45
	14AAA	Yaw Board	45
	14AAB	Roll Board	47
	14AAC	Pitch 1 Board	44
	14AAD	Pitch 2 Board	51
	14AAE	HT & Rudder Board	14
	14AAF	Flap & Logic Board	20
	14AAG	Logic Board	23
	14AAH	Power Supply	25
	14AAJ	Harness, Backplate Interconnect	0
74AA0		Radar Antenna	36
	74AAA	Dibibus Interface	23
	74AAB	Phase Shift Driver	22
	74AAC	Resolver Buffer	28
	74AAD	Az/EI Comp Pwr Amp	15
	74AAE	Antenna Power Supply	26
	74AAF	Cartridge, Dehydrate	0
74AB0		Radar Low Power RF	34
	74ABA	Controller Board #1	29
	74ABB	Controller Board #2	18
	74ABC	Sampled Data	24
	74ABD	Receiver Assy	21
	74ABE	Low Noise Assy	27
	74ABF	Freq. Multiplier	17
	74ABG	Reference Source	52
	74ABH	Beacon LO	13
	74ABJ	Phase Lock Loop	31
	74ABM	LO/VCO	13
	74ABN	Low Power RF Power Supply	20
74AC0		Radar Transmitter	74
74AD0		Radar Digital Signal Processor	40
	74ADA	Sync Board #1	24
	74ADB	Sync Board #2	22
	74ADC	CT/SC Memory Board	67
	74ADE	Comp DSP/IO Board	19
	74ADF	CT/SC Board	14
	74ADF	CT/SC Add Board	18
	74ADG	Zero Freq. Detect	21
	74ADH	Clump/Miss Board	23
	74ADI	Coordinate Conv.	21
	74ADK	Scan Converter	21
	74ADL	Conv. Control Board	23
	74ADM	YY Interpolar/C	28
	74ADN	A/A Target Gen.	21
	74ADP	A/A Target Memory	21
	74ADQ	Data Compress/BIT	18
	74ADR	STC/MRG/SPM #1	24
	74ADS	STC/MRG/SPM #2	19
	74ADT	CFAR #1 Board	21
	74ADU	CFAR #2 Board	27

(continued)

Table A-1. (continued)			
LRU WUC	SRU WUC	Nomenclature	Quantity
74APU	74ADV	CFAR #3 Board	28
	74ADW	AU Outside Board	26
	74ADX	AU Inside #1 Board	19
	74ADY	AU Inside #2 Board	21
	74ADZ	AU Control Board	20
	74AEA	AU Scratch Pad	37
	74AEB	Input Buffer	21
	74AEC	CCC Sq Board	23
	74AED	DSP Power Supply	15
	74AEE	CFAR #0 Board	23
		Radar Computer	29
	74AFA	Arithmetic Unit	37
	74AFB	Control Unit	16
	74AFC	A/C Serial Int #1	15
	74AFD	A/C Serial Int #2	14
74BAU	74AFE	Radar Serial Int	17
	74AFF	4K RAM	25
	74AFG	AIM-9L Interface	16
	74AFH	Analog Converter	16
	74AFJ	Aux Board	16
	74AFK	Computer Power Supply	23
	74AFL	EPROM #1 Board	16
	74AFM	EPROM #2 Board	16
	74AFN	EPROM #3 Board	14
		HUD Display	65
	74BAA	Combiner Glass	16
	74BAB	Optical Mod	16
	74BAC	Control Panel	16
	74BAD	Tabo Unit	16
	74BAE	ERT Power Supply	16
	74BAF	Video Pretr, ET Panel	16
	74BAG	Stand by Sight Power	16
	74BAH	Auto Brill Sensor	16
	74BAI	ED Video Dr Panel	14
	74BAJ	Illuminated Panel	16
74BCU		HUD Electronics	54
74DAU		Inertial Navigation Unit	37
	74DAA	Platform	16
	74DAF	Platform Elec	16
	74DAG	I/O #1	16
	74DAH	I/O #2	16
	74DAI	I/O #3	16
	74DAK	CPU	16
	74DAL	MUX #1	16
	74DAM	MUX #2	16
	74DAN	Servo Module	16
	74DAP	AC/DC	16
	74DAQ	DC/DC	16
	74DAR	HSI Interface	16

APPENDIX B

TELEPHONE CONTACTS FOR EMERGENCY
CONTRACTOR SUPPLY ACTION

(To Be Supplied by General Dynamics)

APPENDIX C

SAMPLES OF FORMS

This appendix illustrates the forms most commonly associated with RIW processing. The following forms are reproduced:

- AFTO Form 350, Reparable Item Processing Tag
- AFTO Form 349, Maintenance Data Collection Record
- DD Form 1348-1, DoD Single Line Item Release/Receipt Document
- DD Form 1149, Requisition and Invoice/Shipping Document
- DD Form 6, Packaging Improvement Report
- AFLC Form 244, Material Request/Turn-In/Customer Receipt
- AF Form 2005, Issue/Turn-In Request
- Standard Form 364 (GSA), Report of Item Discrepancy (ROID)

AFTO FORM 350 FEB. 1977
PREVIOUS EDITION WILL BE USED

BUDGET BUREAU
NO. 21-R0227

REPARABLE ITEM PROCESSING TAG

1. JOB CONTROL NO.	2. ID / SERIAL NO.	3. TM	3A. SRD	4. WHEN DISC
5. HOW MA.	6. MDS	7. WORK UNIT CODE	8. ITEM OPER. TIME	9. QTY.
10. FSL	11. PART NUMBER			
12. SERIAL NUMBER		13. SUPPLY DOCUMENT NUMBER		
14. DISCREPANCY				
15. SHOP USE ONLY				
16. SA CMD ART ID				
TAG NO.		112139		AFTO 350 PT. I
17. SUPPLY DOCUMENT NUMBER				
18. NOMENCLATURE				
19. PART NUMBER				
20. NSN				
20. ACTION TAKEN	21. QTY	22. RPC USE ONLY		
TAG NO.		112139		AFTO 350 PT. II

U S GOVERNMENT PRINTING OFFICE: 1977-758-4-0

WARNING
Unauthorized persons removing, defacing, or destroying this tag (or label) may be subject to a fine of not more than \$1,000 or imprisonment for not more than one year or both.
(18 USC 1 361)

REPAIR CYCLE DATA

23. NSN	24. SRAN CODE				
25. TRANSPORTATION CONTROL NUMBER					
STATUS CHANGED TO					
26. SERVICEABLE					
27. CONDEMNED					
28. SUPPLY INSPECTOR'S STAMP					
29. BASE REPAIR CYCLE DATA					
DATE REMOVED	REC'D BY RPC	MO	DAY	YR.	TIME
TO:					AWP
TO:					
TO:					
TO:					
DATE COMPLETED					

SHIPPING CONTAINER TALLY		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	
REQUISITION AND INVOICE/SHIPPING DOCUMENT			
1. FROM		6. REQUISITION NO.	
2. TO		7. DATE MATERIAL REQUIRED	
3. SHIP TO-MARK FOR		8. PRIORITY	
4. ACCOUNTING AND FUNDING DATA		9. AUTHORITY OR PURPOSE	
10. SIGNATURE		11. VOUCHER NUMBER AND DATE	
12. DATE SHIPPED		12. VOUCHER NUMBER AND DATE	
13. MODE OF SHIPMENT		14. BILL OF LADING NUMBER	
15. AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NUMBER		15. AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NUMBER	
16. FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIAL, AND/OR SERVICES		17. QUANTITY REQUESTED	
17. QUANTITY REQUESTED		18. SUPPLY ACTION	
18. SUPPLY ACTION		19. UNIT PRICE	
19. UNIT PRICE		20. TOTAL COST	
20. TOTAL COST		21. SPECIAL HANDLING	
21. SPECIAL HANDLING		22. CONTAINER DATE	
22. CONTAINER DATE		23. BY	
23. BY		24. SHEET TOTAL	
24. SHEET TOTAL		25. GRAND TOTAL	
25. GRAND TOTAL		26. RECEIVED BY	
26. RECEIVED BY		27. DATE	
27. DATE		28. POSTED	
28. POSTED		29. RECEIVED BY	
29. RECEIVED BY		30. VOUCHER NO.	
30. VOUCHER NO.		31. TOTAL	
31. TOTAL		32. 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	
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DD FORM 1 MAR 60 1149		REPLACES EDITION OF 1 MAY 58 WHICH MAY BE USED	

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FUNCTION										AW. DATE										AX. TIME										AY. SERIAL										AZ. PART NUMBER										BA. DOCUMENT NUMBER										BB. STOCK NUMBER										BC. QUANTITY										BD. FUNCTION										BE. DATE										BF. TIME										BG. SERIAL										BH. PART NUMBER										BI. DOCUMENT NUMBER										BJ. STOCK NUMBER										BK. QUANTITY										BL. FUNCTION										BM. DATE										BN. TIME										BO. SERIAL										BP. PART NUMBER										BQ. DOCUMENT NUMBER										BR. STOCK NUMBER										BS. QUANTITY										BT. FUNCTION										BU. DATE										BV. TIME										BW. SERIAL										BX. PART NUMBER										BY. DOCUMENT NUMBER										BZ. STOCK NUMBER										C0. QUANTITY										C1. FUNCTION										C2. DATE										C3. TIME										C4. SERIAL										C5. PART NUMBER										C6. DOCUMENT NUMBER										C7. STOCK NUMBER										C8. QUANTITY										C9. FUNCTION										CA. DATE										CB. TIME										CC. SERIAL										CD. PART NUMBER										CE. DOCUMENT NUMBER										CF. STOCK NUMBER										CG. QUANTITY										CH. FUNCTION										CI. DATE										CJ. TIME										CK. SERIAL										CL. PART NUMBER										CM. DOCUMENT NUMBER										CN. STOCK NUMBER										CO. QUANTITY										CP. FUNCTION										CQ. DATE										CR. TIME										CS. SERIAL										CT. PART NUMBER										CU. DOCUMENT NUMBER										CV. STOCK NUMBER										CW. QUANTITY										CX. FUNCTION										CY. DATE										CZ. TIME										D0. SERIAL										D1. PART NUMBER										D2. DOCUMENT NUMBER										D3. STOCK NUMBER										D4. QUANTITY										D5. FUNCTION										D6. DATE										D7. TIME										D8. SERIAL										D9. PART NUMBER										DA. DOCUMENT NUMBER										DB. STOCK NUMBER										DC. QUANTITY										DD. FUNCTION										DE. DATE										DF. TIME										DG. SERIAL										DH. PART NUMBER										DI. DOCUMENT NUMBER										DJ. STOCK NUMBER										DK. 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REPORT OF ITEM DISCREPANCY (ROID)

1 DATE OF PREPARATION		2 REPORT NUMBER	
3 TO (Name and address, include ZIP code)		4 FROM (Name and address, include ZIP Code)	
5 SHIPPER'S NAME		5A. DATE OF INVOICE	5B. INVOICE NUMBER
6 SHIPMENT NUMBER	7. GBL, MANIFEST, WAYBILL, TCN, ETC.		8. CONTRACT/DOCUMENT NUMBER
9	10	11	12
FSN, PART NUMBER AND NOMENCLATURE	UNIT OF ISSUE	QUANTITY SHIPPED/ BILLED	QUANTITY RECEIVED
DISCREPANCY			
QUANTITY (a)			
UNIT PRICE (b)			
TOTAL COST (c)			
CODE (d)			
ACTION (e)			

15. REMARKS (Continue on separate sheet of paper if necessary)

DISCREPANCY CODES

CONDITION

D1 - Material received with a defective or in condition (one that indicated on release receipt as such)

DOCUMENTATION

D2 - Supply documentation not received
D3 - Supply documentation (e.g. bill of material) not received
D4 - Supply documentation (e.g. bill of material) not received
D5 - Supply documentation (e.g. bill of material) not received

MISDIRECTED

M1 - Material addressed to wrong unit

OVERAGE (DUPLICATE SHIPMENTS)

O1 - Quantity received in excess of quantity on receipt document
O2 - Quantity received in excess of quantity on receipt document
O3 - Quantity received in excess of quantity on receipt document

SHORTAGE

S1 - Quantity received less than quantity on receipt document
S2 - Quantity received less than quantity requested (Other than unit of issue pack)

S3 - Non receipt of parcel post shipments

ITEM TECHNICAL DATA MARKINGS (e.g., Name Plates, Log Book, Operating Handbook, Special Instructions, etc.)

T1 - Missing
T2 - Legible or mutilated
T3 - Precision or operational markings missing
T4 - Inspection data missing or incomplete
T5 - Serviceability or operating data missing or incomplete
T6 - Warning data missing

WRONG ITEM (Identify requested item on a separate entry on item - price)

W1 - Incorrect item received
W2 - Incorrect item received
OTHER DISCREPANCIES
2 - See remark

ACTION CODES

1A - Disposition instructions requested (See remark)

1B - Material being retained (See remark)

1C - Supporting supply documentation requested

1D - Material with required expedite shipment

1E - Material purchase material to be returned at supplier's expense unless disposition instructions to the contrary are received within 15 days (See remark)

1F - Replacement shipment requested
1G - Other action requested (See remark)

A. NAME OF BRANCH NAME AND TITLE OF PREPARING OFFICIAL

1. SIGNATURE

1. PART NUMBER AND ACTION NUMBER DATA

8. SHIPMENT NUMBER

9. SHIPMENT RECEIPT NUMBER (If any)

10. DATE

21. DISCREPANCY CODE (S, O, M, D)

21. FROM

22. TO

Use window envelope to mail this document. Insert name and address, including ZIP Code, starting one typing space below the left dot. Each address line must NOT extend beyond right dot. Address must not exceed four single space typing lines.

23. IN ACCORDANCE WITH NOTICE OF DISCREPANCY ON REVERSE

A. ☐ INVOICE/BILL ATTACHED

B. MATERIAL

☐ HAS BEEN

☐ WILL BE SHIPPED.

(Document No. _____)

C. A ☐ CREDIT

☐

DEBIT ADJUSTMENT IN THE BILLING HAS BEEN PROCESSED

24. THE FOLLOWING DISPOSITION IS TO BE MADE OF THE REFERENCED MATERIAL:

A. ☐ SCRAP

B. ☐

REPRESENTATIVE WILL CALL IN _____ DAYS FOR DISCUSSION CONCERNING DISPOSITION

C. ☐

WILL BE PICKED UP IN _____ DAYS

D. ☐

SHIP MATERIAL TO: →

(1) ☐

GBL APPROPRIATION CHARGEABLE

(2) ☐

CHARGES COLLECT—VIA

☐

FREIGHT

☐

EXPRESS

☐

PARCEL POST

E. ☐

OTHER (Specify)

(\$ _____ postage advanced herewith
NOTE: Please enclose postage. Material
cannot be returned Parcel Post collect.)

25. REPLACEMENT WITH SATISFACTORY MATERIAL WILL BE MADE ON OR BEFORE (Date) _____

26. REMARKS

27. TYPED OR PRINTED NAME OF PREPARING OFFICIAL

27A. SIGNATURE

27B. DATE

APPENDIX D

ADDRESSES OF RIW PRINCIPALS

	<u>Contractor</u>	<u>SRAN</u>	<u>Routing Identifier</u>
(1)	General Dynamics Fort Worth Division P.O. Box 748 Fort Worth, TX 76101	*	*
(2)	Lear-Siegler Astronics Division 3171 South Bundy Drive Santa Monica, CA 90406	FY7983	F42
(3)	Marconi Avionics Limited Airborne Display Division Airport Works Rochester, Kent ME 1 2XX England	FY8006	F44
(4)	Marconi Avionics Inc. 4500 N. Shallowford Road Atlanta, GA 30338	FY7999	F44
(5)	Westinghouse Electric Corporation 1111 Shilling Road Hunt Valley, MD 21030	FY7963	F41
(6)	The Singer Company Kearfott Division 90 New Dutch Lane Fairfield, NJ 07006	FY7985	F43

*Info addressee, for communication only.

APPENDIX E

EPG TRANSPORTATION PLANS

(See ASD/YPL document, "F-16 Multinational Transportation Plan,"
dated 25 October 1979.)

AD-A099 303

ARINC RESEARCH CORP ANNAPOLIS MD

F/G 15/5

F-16 RELIABILITY IMPROVEMENT WARRANTY IMPLEMENTATION AND MANAGE--ETC(U)

MAY 81 G HARRISON

F09603-78-G-4125

NL

UNCLASSIFIED

1565-21-1-2461

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APPENDIX F

PRINCIPLES OF AGREEMENT FOR MFPN COST SHARING
IN THE REPAIR OF NONWARRANTED ASSETS

MEMO FOR RECORD

SUBJECT: Joint Use of RIW and Non-RIW Items

1. Under the F-16 Reliability Improvement Warranty (RIW) program, the prime contractor, General Dynamics Fort Worth, is committed through its subcontractor to provide depot-type repair services for nine (9) LRUs during the period 1979 through 1982. The United States and the four (4) countries of the EPG have agreed to commingle all warranted assets relating to these nine (9) LRUs for storage and distribution at the subcontractor secure storage facilities. Such commingling benefits all nations in reducing sparing levels and item management costs and is in the spirit of partnership established for the F-16 program. During the warranty period, there will be additional items procured of these nine (9) LRUs which will not be included in the RIW. These non-warranted items will be introduced into the inventory because:

- a) Not all "associated spares" for the warranted aircraft may be included in the RIW—an item that is currently under negotiation.
- b) The USAF aircraft buy will exceed 250 aircraft and the EPG aircraft buy will exceed 192 aircraft prior to the expiration of the warranty. These are the aircraft quantities that are contractually established for RIW coverage.

2. It is proposed that all nations agree to jointly share in the use of all items whether warranted or non-warranted. Depot stockage levels of all such items would be maintained in the secure storage area established under the RIW program and will be available to all nations as needed on a first-in, first-out basis. Each nation will also agree to pay for the repair of unwarranted assets on an equitable basis established through the flying hours accrued by each country. For the non-warranted associated spares, flying hours of warranted aircraft will be used.

3. For the non-warranted items arising from non-warranted aircraft, the flying hours of such aircraft will be used as the basis for cost allocation. The USAF buying schedule is such that the first unwarranted aircraft will be bought in mid-1981. The USAF will buy spares to support these additional aircraft and such spares will be available to all nations. Instead of requiring the EPG countries to contribute to the spares pool prior to their purchase of unwarranted aircraft, it is proposed that all nations obligate funds in mid-1981 to cover repair costs for unwarranted items. Cost allocation factors will be developed based on the flying hours program of all aircraft over the total warranty period. These factors will determine the actual periodic payments each nation will have to make to cover the cost of repair of unwarranted items during the payment period. If necessary, adjustments will be made at the end of the program to account for significant deviations from the planned flying hour program.

4. By the proposed procedure all nations will greatly benefit from increased depot spares availability at a relatively minimal cost of early payment for the EPG countries. An agreement to this principle of sharing in the use of all assets associated with RIW designated units is sought from the EPG nations. Once such agreement is reached, details will be jointly developed for obligating funds, paying for repairs, and implementing and managing associated logistic support and warranty termination activities.

5. I have read the above memo and agree in principle to the concept.

SNR - Belgium

[Signature] 02 Aug 78

SNR - Denmark

[Signature] 20 Aug 78

SNR - Norway

[Signature] 24 July 78

SNR - The Netherlands

[Signature] 25 July 78

Ralph J. Ricketts

RIW PROGRAM MANAGER

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DATE
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